REPORT

OF THE

VEHICLE EMISSIONS INSPECTION PROGRAM

TASK FORCE

Senator Norman R. Stone, Jr.
Chairman

January 1987

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January 12, 1987

VEHICLE EMISSIONS INSPECTION PROGRAM TASK FORCE

The Honorable Thomas V. Mike Miller, Co-Chairman
The Honorable R. Clayton Mitchell, Jr. Co-Chairman
Honorable Members of the Legislative Policy Committee

Ladies and Gentlemen:

On behalf of the Vehicle Emissions Inspection Program Task Force, I am pleased to submit to you the report of our work during the 1986 Interim.

Responding to the mandate of Senate Joint Resolution 22 of 1986 to "review options and make recommendations for the future of the Vehicle Emissions Inspection Program", this Task Force has held 8 meetings since September 23, 1986, including 3 regional public forums. We have heard the testimony of federal and state government officials, technical experts, industry representatives, and concerned citizens.

During the course of our work, we have examined the requirements of federal law, the effect of the VEIP on air quality and public health, the convenience of the Program to the motorist, the administration of the Program, and the potential for increased private sector involvement in the Program.

This report details the findings of the Task Force, and our recommendations regarding the VEIP's future. We believe that the implementation of these recommendations will contribute to an improved program that complies with the requirements of federal law and enhances air quality while reducing the inconvenience and burden on our citizens.

In a related matter, we would like to bring a recent court decision to your attention. Subsequent to the Task Force recommendations and this report, on January 12, 1986, Circuit Court Judge Donald J. Gilmore ruled that the authority the state legislature delegated to state agencies in setting up the Program was "too broad and failed to provide adequate guidelines". This ruling would render the program illegal in Carroll County in 30 days unless the decision is appealed, which the Attorney General is in the process of doing. Judge Gilmore was previously reversed in this case in 1984.

Although it is not addressed in the report, it is the Task Forces' wish that the General Assembly is aware of the Carroll County court case, as discussions begin to implement the report's recommendations.

We trust that this report will serve as a framework for the deliberations of the General Assembly in 1987 and that our recommendations will receive serious consideration.

Finally, on behalf of the Task Force, I wish to express our sincere appreciation for the cooperation of the government officials and members of the public who testified before the Task Force or otherwise provided assistance.

We have valued the opportunity to serve the citizens of Maryland as members of the Vehicle Emissions Inspection Program Task Force.

Respectfully submitted,

Norman R. Stone, Jr.
Chairman

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VEHICLE EMISSIONS INSPECTION PROGRAM (VEIP) TASK FORCE

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Executive Summary

The Vehicle Emissions Inspection Program Task Force was established by Senate Joint Resolution 22 to "review options and make recommendations for the future of the Vehicle Emissions Inspection Program".

The Task Force held eight meetings, including three regional public forums during the Legislative Interim. During the course of the meetings, federal and state officials,industry representatives and citizens provided testimony.

Based on the testimony, the Task Force made several recommendations, including:

1) The VEIP should be continued beyond 1988 only as long as it is required by federal law.

2) Any future VEIP should be a biennial program with supplemental anti-tampering checks for emissions control devices.

3) The existing centralized program should be retained, supplemented by anti-tampering checks, provided the General Assembly is satisfied with the quality and cost of any new contract. Further, any future contract or program implementation should be subject to approval by the General Assembly.

4) The VEIP should not be expanded to adjacent counties.

5) Heavy duty gasoline powered trucks should be included in the VEIP.

6) The waiver system should remain unchanged.

7) Small car dealers should be authorized to have their vehicles tested at licensed vehicle dealer "Fleet Inspection Stations".

8) A penalty section should be included in the VEIP statute for falsifying records, forms or other information.

I. INTRODUCTION

In their 1986 joint report to the General Assembly on the Vehicle Emissions Inspection Program, the Departments of Transportation and Health and Mental Hygiene called for a "thorough review of issues and options by the General Assembly with participation of the Department of Transportation, Health and Mental Hygiene and private groups." Partly in response to this recommendation, the 1986 Session of the General Assembly passed Senate Joint Resolution 22 calling for the establishment of a Task Force to "review options and make recommendations for the future of the Vehicle Emissions Inspection Program" (see Appendix I, Exhibit 1). The Task Force was appointed by the Legislative Policy Committee, (The Honorable Melvin A. Steinberg and The Honorable Benjamin L. Cardin Co-Chairmen), and was active during the 1986 interim (see Appendix I, Exhibit 2).

The Task Force focused its attention on 4 basic issues:

1. **The Need for the Program Beyond the Statutory Termination Date of December 31, 1988**

   The Task Force examined federal legal requirements; federal sanctions on non-complying states; and air quality benefits attributable to the Vehicle Emissions Inspection Program.

2. **Possible Program Modifications**

   The Task Force studied various program options including altering the frequency of the test; providing supplemental inspections to prevent tampering with auto emissions equipment; and establishing a decentralized inspection system.

3. Expansion of Program Coverage

The Task Force evaluated suggestions that the VEIP be expanded to include additional areas of the State or to include heavy duty gas and diesel powered trucks.

4. Administrative Changes

The Task Force studied a number of other issues including the frequency and cost of waivers for vehicles that fail the inspection test; authorizing small auto dealerships to have their vehicle tested by another certified dealer "Fleet Inspection Station", specifying penalties for certain violations such as misrepresenting the cost of "tune-up" work done to obtain a waiver, or falsifying inspection results.

BACKGROUND

A. History of VEIP

The Maryland Vehicle Emissions Inspection Program (VEIP) was originally created by law during the 1979 Session of the General Assembly, in order for the State to comply with the requirements of the Federal Clean Air Act (see Appendix I, Exhibit 3). The federal law required that all areas of the country achieve specific air quality standards for carbon monoxide and ozone by the end of 1982. However, a provision in the Clean Air Act allowed any state unable to meet the air quality standards by the 1982 deadline to seek a 5-year extension until the end of 1987 under certain conditions.

Specifically, a state seeking an extension was required to demonstrate to the U.S. Environmental Protection Agency (EPA) that the standards for ozone (HC) and/or carbon monoxide (CO

could not be met by 1982, and to present to the EPA a revised "State Implementation Plan" (SIP) detailing the establishment of a vehicle emissions inspection and maintenance program. If a State failed to meet the standards by 1982 and failed to successfully apply for an extension, or failed to fulfill the requirements on which the grant of an extension was based (i.e., establishment of an I & M Program), then EPA was required by federal law to institute sanctions against those states. The federal penalties included the loss of funds for highways and environmental projects, as well as limits on new industrial construction projects for any industry that would add to the air quality problems.

In January 1979, Maryland filed a formal request for an extension of the EPA deadline, demonstrating that in the Baltimore and Washington metropolitan areas the air quality standards could not be attained by 1982 and asserting that the State would implement VEIP in the counties contained in those areas. Although VEIP was originally scheduled to begin in 1982 (under the terms of the 1979 statute), the General Assembly delayed implementation of the Program until 1984 and imposed a termination ("sunset") date on the Program.

The new deadline for meeting the federal air quality standards is December 31, 1987, and the "sunset" date on VEIP is December 31, 1988. With these two dates approaching the Departments of Transportation and Health and Mental Hygiene, the agencies that administer the Program, have expressed their hope

that any modifications to a future VEIP will be instituted during the 1987 Session. This is necessary in order to allow those agencies sufficient lead time to implement the changes prior to the December 31, 1988 sunset.

B. Air Quality and Purposes of VEIP

In general, the goal of a vehicle emissions inspection and maintenance program is to improve ambient air quality and thereby reduce public health risks. Human health is particularly threatened by the presence in the atmosphere of excess levels of carbon monoxide and ozone, both of which are produced by automobile exhaust.

Ozone, the primary component of "smog", is formed by a chemical reaction of hydrocarbons (a vehicle exhaust component) and nitrogen oxides in the presence of sunlight. Carbon monoxide is formed as a result of the incomplete combustion of gasoline or other fossil fuels. Carbon monoxide replaces oxygen in the blood, impairs heart function, and causes dizziness and head aches. In contrast, ozone irritates eye, nose and throat membranes and causes respiratory difficulties. In addition, ozone has been shown to cause deterioration of rubber and other substances, and to cause widespread crop damage. In the Baltimore area, it is estimated that motor vehicles account for 50% of the ozone and 90% of the carbon monoxide, while in the Washington area, vehicles contribute 60% of the ozone and 90% of the carbon monoxide.

The Vehicle Emissions Inspection Program is designed to reduce ozone and carbon monoxide by identifying those vehicles emitting excess levels of pollutants and requiring certain repairs necessary to reduce those emissions. The Maryland VEIP attempts to accomplish these goals by inspecting approximately 1.7 million vehicles a year at 10 centralized testing stations operated in Baltimore City and Anne Arundel, Baltimore, Carroll, Harford, Howard, Montgomery, and Prince George's Counties. The emissions tests are conducted by a private contractor, Systems Control, Incorporated (SC).

The vehicle emissions test consists of the placement of a probe into the vehicle's exhaust pipe. The test yields a computerized analysis of emission readings which is transmitted directly to SC's central computer and stored on tapes for direct transmission to the Motor Vehicle Administration.

C. Administration of the Maryland VEIP

Responsibility for overall supervision of the State's VEIP is shared between the Motor Vehicle Administration (MVA) of the State Department of Transportation and the Air Management Administration (AMA) of the Department of Health and Mental Hygiene. The Air Management Administration is responsible for establishing testing standards and procedures to assure compliance with the air quality goals of the State Implementation Plan, while the Motor Vehicle Administration is responsible for administration and enforcement of the VEIP. The MVA selects and

schedules vehicles for testing and enforces compliance with the program through the vehicle registration process. The MVA also serves as the public's point of contact with the program, providing information and processing all requests for waivers, extensions, and refunds.

The most recent audit of VEIP by the federal Environmental Protection Agency concluded that the program is "operating very well and is capably managed", and that the "integrity of the program's operation on a day-to-day basis is very high, and the enforcement process is excellent."

II. THE NEED FOR A VEHICLE EMISSIONS INSPECTION PROGRAM BEYOND 1988

o **Issue**

The Need For A Future VEIP.

Description

The primary goal of the Vehicle Emissions Inspection Program (VEIP) is to attain and maintain the federally-established National Ambient Air Quality Standards (NAAQS) for ozone and carbon monoxide in the Baltimore and Washington, D.C. Metropolitan areas. The VEIP is an integral part of Maryland's State Implementation Plan (SIP) to achieve those standards.

However, according to the authorizing statute (Title 23, Subtitle 2, of the Transportation Article, Annotated Code of Maryland), the VEIP will terminate December 31, 1988 unless the General Assembly acts to renew it.

The Task Force determined that the decision to renew the VEIP depends primarily on the demonstrable level of air quality benefits derived from the program; the strength of the federal commitment to such Inspection and Maintenance (I/M) programs; and the continued authority and intention of the federal government to sanction non-complying states by, for example, withholding federal highway funds. The Task Force, therefore, focused its attention on these issues in its early meetings.

Discussion

The Task Force concluded that the fundamental facts regarding the future need for the VEIP are that the Federal Clean Air Act still requires it; that, as best as can be determined at this time, Congress is committed to the Program; and that the Environmental Protection Agency (EPA) continues to have the authority and the intention to sanction non-complying states.

Federal EPA officials testified before the VEIP Task Force that they would view a state's retreat from a commitment to an I/M program as a violation of the State Implementation Plan. This would subject the state to the loss of federal highway funds which the Department of Transportation estimates could amount to over $200 million over the FY 1990-92 period. In addition, U.S. Senator Robert T. Stafford, Chairman of the Senate Committee on Environment and Public Works, the committee that oversees the Clean Air Act, in a letter to the Task Force chairman stated his belief that Congress is committed to reducing ozone pollution and that state I/M programs would continue to be a part of that effort (see Appendix II, Exhibit 1).

Other testimony delivered by EPA officials demonstrated that Maryland's air quality would be considerably worse if there were no VEIP (see Appendix II, Exhibit 2). In addition, as the level of air quality benefits attributable to the Federal Motor Vehicle Control Program (FMVCP)* becomes less significant over time,

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*The Federal Motor Vehicle Control Program, known as the "New Car Program" requires certain emissions control devices to be built into new cars. This includes the total emission control system to reduce pollutants from the vehicle exhaust.

future growth in vehicle emissions must be offset by an alternative control strategy such as VEIP. Furthermore, the Task Force was informed by state and federal officials that the elimination of the VEIP would require that additional emissions controls on industrial sources be utilized to offset the loss of air quality benefits accompanying the elimination of the VEIP. According to DHMH testimony, a cost-benefit analysis demonstrates that the VEIP costs $2,198 per ton of HC removed from the atmosphere compared to the $3,122 per ton cost of replacing the VEIP with new industrial controls.

Department of Health and Mental Hygiene officials also testified before the VEIP Task Force that although significant progress has been made, the State's two non-attainment areas may not achieve the ozone standard by 1988. The lack of available industrial control strategies to compensate for recent increases in gasoline Reid Vapor Pressure and decreased effectiveness of the VEIP through its high waiver rate have produced a shortfall of 7.5 tons per day of hydrocarbon (HC) reductions in Baltimore and 11.0 tons per day in the Washington, D.C. areas. The absence of the VEIP would add an estimated 10.0 tons per day to that shortfall in Baltimore and 6.5 tons per day in Washington, D.C.

Notwithstanding the shortfall from the State's original goal of attaining the ozone and carbon monoxide standards by 1987, HC and CO emissions from vehicles that fail the emissions test have dropped by about 50% after the vehicles are repaired (see in Appendix II, Exhibit 3). Other states' studies demonstrate a

carbon monoxide reduction ranging from 4 to 18% annually as a result of I/M programs. EPA and DHMH statistics demonstrate that in Maryland, CO levels have been reduced by over 12% in three years and this reduction is directly attributable to the VEIP. Although ozone benefits are more difficult to demonstrate than CO benefits, the following trends, documented by the Department of Health and Mental Hygiene and the Environmental Protection Agency, were presented to the task force:

1) For two meteorologically similar test years, 1983 and 1986, before and after the VEIP began, respectively, violations of the ozone standard have dropped from 49 in 1983 to 12 in 1986 in Baltimore and from 27 in 1983 to 4 in 1986 in the metropolitan Washington, D.C. Maryland area.

2) Allocating proportionately, according to the SIP estimates, the drop of 34 ppb ozone at the State's prime monitoring site in Edgewood between 1983 and 1986, demonstrates that the VEIP accounts for a 7 ppb ozone reduction during those years.

3) The EPA has developed a more sophisticated statistical model that determines the cause and effect of individual ozone violations. In 1985 and 1986 it shows that the VEIP is responsible for at least a 6.8 ppb ozone reduction in the Baltimore area.

A more complete discussion of the DHMH analysis from which these trends were derived is included in Appendix II, Exhibit 4.

Recommendation

The Task Force recommends, because of the reported improvements in air quality as a result of the program, that the VEIP be continued beyond 1988 only as long as it is required by federal

law. It is clear from EPA and Congressional testimony that there has not been, and is unlikely to be any change in federal law in this regard and the State, therefore, has no practical alternative.

III. POSSIBLE PROGRAM MODIFICATIONS

o **Issue**

Biennial, Anti-Tampering Program Modifications.

Description

Many motorists are concerned about the inconvenience of having to report to an emissions inspection station once a year as currently required by law. A biennial program that would require only one inspection every two years is one alternative that the Task Force examined in an effort to make the Program more convenient.

Discussion

The Task Force heard testimony that relaxing the frequency of vehicle emissions tests to a biennial schedule would reduce the inconvenience and cost of the Program to the motorist. However, EPA officials have stated that in order to maintain the emissions benefits required of the VEIP, a change to a biennial program would require supplemental tampering checks as part of the test procedure. The tampering checks could be performed at the same time as the tailpipe test and at the change-of-ownership safety inspections.

In addition to the added convenience, EPA officials have indicated that variations of biennial/tampering programs are the most cost-effective options available, and that such programs

provide even greater emissions reductions than the State's present annual tailpipe test without tampering checks. Using EPA's "MOBILE 3" statistical model, the Department of Health and Mental Hygiene evaluated numerous biennial/tampering alternatives for the Task Force. Table 1 below presents the options given strongest consideration by the Task Force, and compares them to the current tailpipe program in terms of the HC emissions benefits immediately available in 1989 and the benefits available in 1994, after a five-year program.

Table 1. HC Emissions Benefits of Several Biennial/Tampering Program Alternatives

VEIP Tampering Frequency	VEIP* Tampering Checks	Change-of-* Ownership Tampering Checks	HC Emissions Test Benefits (Mg/day) 1989	1994
Annual (Current Program)	None	2 Parameter	11.1	11.8
Biennial	None	6 Parameter	12.7	13.7
Biennial	3 Parameter	6 Parameter	13.2	14.2

*Tampering

2 Parameter=catalytic converter and fuel inlet restrictor checks.
3 Parameter=2 Parameter plus Plumbtesmo test for lead deposits.
6 Parameter=3 Parameter plus PCV valve, fuel vapor canister and air pump checks.

Recommendations:

Any future VEIP should be a biennial program with supplemental tampering checks. The preferred option is a biennial tailpipe test with a three-parameter tampering check, supplemented by a six-parameter tampering check on change of ownership.

o **Issue**

Various Program Options.

Description

There has been much debate over which type of program would be best for Maryland, a centralized program or a decentralized program. In a centralized program, centrally located inspection facilities perform emissions tests, while in decentralized programs, licensed private garages perform the emissions tests.

Discussion

Several major considerations regarding each of the testing options were reviewed by the Task Force. These considerations included: cost, convenience, accuracy of data communication, potential for system abuse, quality control, and the ease of instituting a new program after the current one expires on December 31, 1988.

The Task Force analyzed the advantages and disadvantages of each program option based on the testimony of industry representatives, U.S. Environmental Protection Agency (EPA) officials, State air quality officials and concerned citizens. A compar-

ative analysis of the options is found in Table 2 on page III 5, with supporting data provided by the Greater Washington/Maryland Service Station Association (see Appendix III, Exhibit 1) and Systems Control, Inc., the current program operator (see Appendix III, Exhibit 2). The analysis shows that:

1) A centralized program offers motorists the greatest protection against system abuse, and provides uniform testing and better quality control of operating procedures. On the other hand, a decentralized program offers motorists a larger number of inspection sites, and therefore, greater convenience. The same facility that inspects a vehicle can also repair the vehicle in a decentralized program. A hybrid centralized program with a decentralized retest could afford the best of both programs; however, the greater cost of operating such a dual system is a significant negative factor.

2) Costs for the two types of programs vary in the timing of cash outlays for the program. Centralized programs require larger capital outlays to start the program. In contrast, decentralized programs transfer the burden of initial financing to a broader base of garages, but increase the recurring cost to the state of monitoring the operations of the private garages. A centralized testing program with a decentralized retest must recoup both the initial capitalization costs as well as the cost of monitoring the private garages.

Table 2

COMPARISON OF ADVANTAGES AND DISADVANTAGES OF DECENTRALIZED, CENTRALIZED AND CENTRALIZED/DECENTRALIZED RETEST PROGRAMS

CENTRALIZED PROGRAM

Advantages

1) Greater degree of quality control; data integrity.

2) Minimal potential for abuse of consumer since tests are separate from repairs.

3) Accurate means of enforcement.

4) If current contract is renegotiated could result in a reduced test fee for consumers.

Disadvantages

1) Not as convenient to vehicle owners since the stations are located regionally.

2) Requires a vehicle owner to have repairs performed elsewhere.

DECENTRALIZED PROGRAM

Advantages

1) Most convenient due to maximum number of test stations.

2) Requires only one trip by a vehicle owner; repairs can be performed at the test facility.

3) Potentially lower test fee.

Disadvantages

1) Requires total revision of operating and administrative procedures, including enforcement.

2) Lower quality control for equipment due to inability of State to closely monitor a large number of stations.

3) Test and repairs are performed by the same person, with a greater potential for abuse of the consumer.

CENTRALIZED TEST/DECENTRALIZED RETEST PROGRAM

Advantages

1) The centralized portion of the program is already in place.

2) Would allow a vehicle owner to have repairs and retest performed at a local facility; requires only one trip to a centralized station.

3) Greatest degree of quality control for the initial test, while providing convenience for the vehicle owners to have retest done at a local garage.

4) Would separate initial test from repairs.

Disadvantages

1) Would require new data transfer system which may not be as efficient as the current one.

2) Greatest cost to the consumer, because of the need to implement and operate two programs.

The Task Force heard testimony from EPA officials who recommended the continuation of a centralized program. The EPA officials noted that, without exception, the centralized programs across the Nation have been more accurate, less expensive for the consumer, and have resulted in improved air quality. However, they conceded that the perceived convenience of a decentralized system is generally appealing to the consumer.

Other testimony indicated that while there are still some consumer complaints, the public generally has become accustomed to the test. The test procedure and the administration of the Program have "smoothed-out" considerably since the inception of VEIP and it was generally conceded that at present, there are few problems or complaints with the program. The EPA's audit of the Maryland program supports this conclusion, identifying the VEIP as one of the best I/M programs in the United States (see Appendix III, Exhibit 3).

In addition, the Task Force concluded that a centralized system would eliminate the massive computer programming and data communication changes that would accompany any major program modification. Maintaining the current centralized system would also eliminate the need to reeducate the public on the requirements of a totally new test procedure. Finally, because of all of these factors, as well as the fact that the Program's initial capital investment has already been recouped, the overall cost of continuing the current system would probably be less than the cost of changing to a decentralized system.

The Task Force emphasized, however, the importance of this

cost-reduction to a continued centralized program. In this regard, the Task Force recommended that the State rebid or renegotiate the existing contract with close legislative oversight. This process should begin as soon as possible so that in the event that a reasonable reduced bid cannot be secured the State still would have time to implement a decentralized program or consider exercising state condemnation powers to acquire the existing test facilities. The legislative members of the Task Force reemphasized their desire to play a role in any future contract negotiations by, for example, exercising legislative approval authority for any future contract or program.

Recommendation

The existing centralized program should be retained supplemented by anti-tampering checks, provided the General Assembly is satisfied with the quality and price of any new contract. Further, any future contract or program implementation should be subject to approval by the General Assembly.

IV. EXPANSION OF PROGRAM COVERAGE

o **Issue**

Geographic Coverage

Description

Several fringe counties bordering the Baltimore and Washington, D.C. areas produce significant commuter traffic traveling into the two metropolitan areas. The Task Force reviewed whether the VEIP should be expanded to include four additional counties: Cecil, Charles, Frederick and Queen Anne's.

Discussion

The data compiled by the Task Force demonstrated that by including vehicles from adjacent counties in the Program, the State would obtain at most 0.5 tons per day of HC emissions reductions. It was decided that the small improvement in air quality relative to the cost to test these vehicles was not cost effective (see Appendix III, Exhibit 4).

Recommendation

The VEIP should not be expanded to the four fringe counties, since the increased cost to test these vehicles would substantially outweigh the air quality benefits derived.

o **Issue**

Diesels and Heavy-duty Trucks

Description

Diesels and heavy-duty trucks are a highly visible part of the vehicle fleet that many citizens feel make a larger contribution to air pollution than gasoline-powered cars and light-duty trucks, the vehicles currently included in VEIP. Although the Task Force found that no HC or CO emission benefits are obtained from testing diesels, heavy-duty gasoline-powered trucks can provide some emission benefits.

Discussion

The Task Force found that an estimated 1.0 ton per day of HC emissions reduction in Baltimore and 0.7 ton per day reduction in the Washington, D.C. area can be obtained from testing heavy-duty gasoline-powered trucks. In addition, the existing centralized inspection system has been designed with one oversized lane per station that may be able to accommodate large heavy-duty trucks.

Recommendation

Gasoline-powered trucks should be included in the VEIP to the extent possible using existing facilities. Further, if the General Assembly establishes a formal safety inspection program for trucks, it should also require such trucks to undergo, as part of that safety inspection, an emissions test including tampering checks where possible.

V. ADMINISTRATIVE CHANGES

o **Issue**

Waivers

Description

In November 1985, EPA auditors criticized Maryland's high waiver rate which was above 25%. Furthermore, the State's original waiver provisions may not have kept pace with the cost of the more complex repairs required for computer-controlled late model vehicles (see Appendix III, Exhibit 3).

Discussion

While the EPA audits found Maryland to have one of the most effective VEIP's in the nation, one area, waivers, did concern them. EPA testified that by raising the waiver cost or eliminating waivers entirely, Maryland would achieve greater benefits from the Program. They strongly encouraged Maryland to consider either raising the repair cost required to be eligible for a waiver, or eliminating waivers entirely prior to implementing a new program.

The Task Force members felt that raising the cost for a waiver above the current $50 requirement would be burdensome to lower income citizens, even though some other states have higher waiver costs or no provision for a waiver at all. It was pointed out that older vehicles fail at a higher rate than newer cars and

the owners of the older vehicles typically are the least likely to be able to afford major repairs.

It should be noted that the assumption of the Task Force is that CO and HC pollutants will be sufficiently reduced compared to the current program, if the recommendations in this report are adopted, thus obviating the need to increase waiver costs to obtain additional reductions.

Recommendation

The waiver system should remain unchanged.

o **Issue**

Small Car Dealers - Fleet Inspections

Description

A number of witnesses testified before the Task Force that some car dealers are not large enough to warrant or afford repair facilities and therefore cannot qualify as "Fleet Inspection Stations" for the purpose of testing their own vehicles. Currently, such dealers have their vehicles tested at the centralized stations, which, they argue, is costly and inconvenient due to the limited operating hours of the test stations.

Discussion

Task Force members expressed the view that the MVA should make every effort to allow small car dealers to have their vehicles tested at other certified licensed vehicle dealer, "Fleet Inspection Stations". The MVA representative on the Task Force, Mr. W. Marshall Rickert, said that MVA will attempt to address this issue in contract negotiations. In addition, MVA will explore the appropriate fleet size to include in this program.

Recommendation

Small car dealers should be authorized to have their vehicles tested at licensed vehicle dealer "Fleet Inspection Stations".

o **Issue**

Penalties

Description

Task Force members noted that there is no specific provision in the VEIP statute for penalizing a person for falsifying VEIP records.

Discussion

The Task Force concluded that it would be appropriate to include a provision for a penalty within the VEIP Statute for falsification of forms or other VEIP information. It was

suspected by members that such activities may occur and that any future program should address this issue.

Recommendation

A penalty section should be included in the VEIP statute for falsifying records, forms or other information.

Appendix I

- Exhibit 1 — Senate Joint Resolution 22
- Exhibit 2 — Committee Appointment Letter
- Exhibit 3 — Maryland VEIP Law

Exhibit I-1

No. 12

(Senate Joint Resolution No. 22)

A Senate Joint Resolution concerning

A Task Force to Study the Vehicle Emissions Inspection Program

FOR the purpose of requesting the Legislative Policy Committee to establish a task force to review options and make recommendations for the future of the Vehicle Emissions Inspection Program.

WHEREAS, Several public and private sector groups have proposed the establishment of a task force to review options and make recommendations for the future of the Vehicle Emissions Inspection Program; and

WHEREAS, Key aspects of the Vehicle Emissions Inspection Program, such as decentralization of the program, and permitting private sector participation, can now be more clearly evaluated in the light of acquired experience; and

WHEREAS, The Vehicle Emissions Inspection Program is currently scheduled to terminate on December 31, 1988, and a thorough review of the program should be undertaken before the termination date; and

WHEREAS, A truly thorough review of the Vehicle Emissions Inspection Program requires the active participation of interested and knowledgeable representatives of government, industry, and the general public; now, therefore, be it

RESOLVED BY THE GENERAL ASSEMBLY OF MARYLAND, That the Legislative Policy Committee is requested to establish a task force to study the Vehicle Emissions Inspection Program; and be it further

RESOLVED, That the Task Force to Study the Vehicle Emissions Inspection Program be composed of:

(1) 3 members of the House of Delegates, appointed by the Speaker of the House, and 3 members of the Senate of Maryland, appointed by the President of the Senate; and

(2) A representative of the Department of Transportation and a representative of the Department of Health and Mental Hygiene, appointed jointly by the Speaker of the House of Delegates and the President of the Senate of Maryland; and

(3) A representative from the American Automobile Association; the Maryland Highway Users Federation; the Service Station and Automotive Repair Association; and other groups that the Legislative Policy Committee finds appropriate; and be it further

RESOLVED, That the Legislative Policy Committee designate the Chairman of the task force; and be it further

RESOLVED, That the task force report its findings and recommendations to the General Assembly and the Governor by January 1, 1987; and be it further

RESOLVED, That staff for the Committee be provided by the Department of Transportation and the Department of Health and Mental Hygiene; and be it further

RESOLVED, That copies of this Resolution be forwarded by the Department of Legislative Reference to the Honorable Harry Hughes, Governor of Maryland, the Honorable Melvin A. Steinberg, President of the Senate of Maryland, and the Honorable Benjamin L. Cardin, Speaker of the House of Delegates.

Signed May 13, 1986.

Exhibit I-2

General Assembly of Maryland

LEGISLATIVE POLICY COMMITTEE

Honorable Melvin A. Steinberg
Co-Chairman

Honorable Benjamin L. Cardin
Co-Chairman

July 29, 1986

Honorable Norman R. Stone, Jr.
Honorable Leo E. Green
Honorable John A. Cade

Honorable Larry Young
Honorable Nancy Murphy
Honorable V. Lanny Harchenhorn

Lady and Gentlemen:

We are pleased to notify you formally of your appointment to serve as members of the Task Force to Study the Vehicle Emissions Inspection Program that was created by the Legislative Policy Committee. As co-chairmen of that committee, we used the provisions of Senate Joint Resolution No. 22 of the 1986 Session as a starting point to make our appointments to the Task Force.

We have appointed Senator Stone to serve as presiding chairman of the Task Force. Delegate Young will serve as the House chairman.

We have also made the following appointments to the Task Force:

W. Marshall Rickert, Administrator, State Motor Vehicle Administration, Department of Transportation

George P. Ferreri, Director, Air Management Administration, Department of Health and Mental Hygiene

William F. Zorzi, Vice-President for Public Affairs American Automobile Association of Maryland

Paul J. Coughlin, Jr., Maryland Chamber of Commerce (President, Washington Aluminum Company, Baltimore)

Michael D. McDonald, President, Maryland Highway Users Federation

James W. Clarke, Chapter Staff, Sierra Club

The Task Force is charged with undertaking a thorough review of the vehicle emissions inpsection program and analyzing the options the State may wish to consider with respect to the program. This review and analysis is particularly important at this time because the inspection program, by law, will terminate on December 31, 1988. Specifically, the Task Force may also wish to consider specific issues such as decentralization of the program and participation of the private sector.

Administrative staff support will be provided by the Department of Transportation, and legal and drafting staff support will be furnished by the Department of Legislative Reference

We thank you for your willingness to serve on this Task Force, and we look forward to its report and recommendations.

Sincerely,

Melvin A. Steinberg

Benjamin L. Cardin

MAS:BLC:ldj
cc: Hon. William K. Hellmann
Hon. Adele Wilzack
F. Carvel Payne

Subtitle 2. Motor Vehicle Emissions Inspection.

§ 23-201. Definitions.

(a) *In general.* — In this subtitle, the following words have the meanings indicated.

(b) *Emissions standard.* — (1) "Emissions standard" means a requirement that limits the quantity, quality, rate, or concentration of emissions from a motor vehicle.

(2) "Emission standard" includes a requirement that relates to the operation or maintenance of a motor vehicle to assure continuous emission reduction.

(c) *Low emissions tune-up.* — "Low emissions tune-up" means the performance of the following procedures on a motor vehicle or, if the vehicle has failed an initial emissions test, such of the items listed below as have been indicated need repair or adjustment:

(1) Inspection of the air cleaner and choke, and the cleaning, repairing, or replacing of the air cleaner or choke as required;

(2) Adjustment of the idle speed and air-fuel mixture according to the manufacturer's specifications;

(3) Adjustment of the ignition dwell or gap and ignition timing according to manufacturer's specifications;

(4) Inspection of the positive crankcase ventilation valve and vacuum hoses and the repair and replacement of those parts as may be required; and

(5) Inspection of the spark plugs and spark plug wires and the repair and replacement of those parts as may be required.

(d) *Evidence acceptable.* — "Evidence acceptable" means evidence meeting standards adopted by the Administration for uniform application. (1979, ch. 421; 1982, ch. 492; 1983, ch. 517.)

Effect of amendments. — The 1982 amendment, effective July 1, 1982, reenacted the section without change.

The 1983 amendment, effective July 1, 1983, added subsection (a), designated the two formerly undesignated paragraphs in the section as paragraphs (1) and (2) of subsection (b), substituted "emissions" for "in this subtitle, emission" at the beginning of paragraph (1) in that subsection, and added subsections (c) and (d).

§ 23-202. Rules and regulations for establishment of inspection program; establishment of inspection system; location of inspection facilities; contents of rules and regulations; final request for bids.

(a) The Administration, by October 1, 1979, shall publish, in the Maryland Register, proposed rules and regulations providing, to the extent required by federal law, for the establishment of an emissions inspection program to commence no earlier than July 1, 1980 and no later than December 31, 1982. Prior to the drafting of the rules and regulations, the Administration shall hold a minimum of two public hearings, one in the Baltimore metropolitan area and

one in the Washington, D.C. metropolitan area in Maryland for the purpose of receiving public comments. The Administration shall submit the proposed rules and regulations to each house of the General Assembly not later than the 15th day of the regular session of the General Assembly in 1980. The rules and regulations shall provide that as of December 31, 1981 the emissions program is a voluntary one conducted by the Administration in various areas of the State. Public education and awareness programs shall be conducted on a regular basis to inform the citizens concerning the benefits of the emissions program. After December 31, 1983, the program shall be mandatory for all motor vehicles in the State not otherwise exempted. Unless legislation establishing a different program is enacted in the 1980 Session, the proposed rules and regulations, with any amendments that shall have been concurred in by joint resolution of the General Assembly, shall take effect as provided in the rules and regulations.

(b) The program shall require that an inspection system be established in this State to provide for annual inspection, under a schedule adopted by the Administrator, of those motor vehicles required to be inspected.

(c) The inspection system shall consist of inspection facilities established in strategic locations that will best serve the public convenience.

(d) The rules and regulations shall provide that the Administration:

(1) Shall grant a waiver to a vehicle owner if:

(i) The vehicle fails to pass the emissions test;

(ii) The vehicle owner exhibits evidence acceptable to the Administration that the vehicle has either had a low emissions tune-up or that the owner has actually expended $50 towards a low emissions tune-up to the vehicle within 30 days after the emissions test; and

(iii) The vehicle fails a retest, except that if the vehicle owner has exhibited evidence acceptable to the Administration that the vehicle owner actually expended $50 for the low emissions tune-up to the vehicle within 30 days before the initial emissions test, a retest is not required.

(2) Notwithstanding the provisions of this section, may not grant a waiver if it is found in the testing process that a factory-installed emissions device has been tampered with or removed, or that the vehicle has been misfueled;

(3) May grant additional waivers to extend the time for compliance in cases of financial hardship or for unusual circumstances; and

(4) May suspend, revoke, or refuse to renew the certification of a repair facility upon evidence that vehicles repaired by that facility for the purpose of bringing them into compliance with the applicable emission standards have repeatedly failed tests or retests and the Administration has clear and convincing evidence the repair facility is not meeting satisfactory performance standards.

(e) The Administration shall prepare a final request for proposal for a contractor operated system with bids to be received no later than January 1, 1981. (1979, ch. 421; 1980, ch. 725; 1982, ch. 492; 1983, chs. 312, 517.)

Effect of amendments. — The 1982 amendment, effective July 1, 1982, changed the date in the sixth sentence in subsection (a) from December 31, 1982 to June 30, 1983.

Chapter 312, Acts 1983, effective July 1, 1983, substituted "December 31" for "June 30" in the sixth sentence of subsection (a).

Chapter 517, Acts 1983, effective July 1, 1983, also substituted "December 31" for "June 30" in the sixth sentence in subsection (a), and in subsection (d), rewrote paragraph (1), inserted present paragraph (2), redesignated former paragraph (2) as present paragraph (3) and rewrote that paragraph, and redesignated former paragraph (3) as present paragraph (4) and added "and the Administration has clear and convincing evidence the repair facility is not meeting satisfactory performance standards" at the end of that paragraph.

§ 23-203. Installation and operation of system or facility by independent contractor; minimization of nonrecoverable expenses.

(a) In the proposed rules and regulations the Administration shall provide for the establishment of inspection facilities. If the Administration determines that the system can be installed and operated more effectively and economically by an independent contractor than if installed and operated by the Administration, the Administration may award the installation and operation of the inspection facilities to an independent contractor selected in accordance with the bidding procedures established by the laws of this State.

(b) The facility shall be provided, equipped, and maintained by the independent contractor, and the operating personnel of the facility shall be employees of the contractor, and not of the State.

(c) (1) Until April 15, 1983, the Secretary of Transportation and the contractor shall minimize nonrecoverable expenses of the State. The 1983 General Assembly action on modification or repeal of the vehicle emissions inspection program shall determine whether the Secretary shall advance program implementation. The Secretary is directed to authorize the contractor to implement only those activities and expenditures which he finds consistent with the goal of minimizing the State's liability expressed above, while maintaining a "good faith" effort to meet the requirements of the Federal Clean Air Act, as amended. Activities and expenditures by the contractor prior to 1983 General Assembly action which are not authorized and approved by the Secretary are undertaken at the contractor's risk and may be viewed unfavorably by the General Assembly in the event an appropriation is requested by the Governor in the budget to pay any costs incurred as a result of contract termination in whole or in part.

(2) The President of the Senate and the Speaker of the House of Delegates shall appoint a special committee composed of 3 Senators and 3 Delegates who shall regularly consult with the Secretary on the administration of the program and the contract in accordance with the terms of these provisions. (1979, ch. 421; 1982, ch. 492.)

Effect of amendment. — The 1982 amendment, effective July 1, 1982, reenacted subsections (a) and (b) without change and added subsection (c).

§ 23-204. Inspections to be conducted by facilities.

The inspection facilities established under the program shall conduct inspections of motor vehicles to determine whether each vehicle complies with the emission standards established under this subtitle for that vehicle. (1979, ch. 421; 1982, ch. 492.)

Effect of amendment. — The 1982 amendment, effective July 1, 1982, reenacted the section without change.

§ 23-205. Inspection fees.

(a) The Administration shall set the fee to be charged for each vehicle to be inspected under the program.

(1) The fee shall not exceed $9.

(2) The fee shall be collected by the inspecting facility at the time of inspection.

(b) A specific portion of the fee shall be paid to the Administrator to cover the cost of supervision, as provided in the contract between the contractor and the Administration. (1979, ch. 421; 1980, ch. 725; 1982, ch. 492.)

Effect of amendment. — The 1982 amendment, effective July 1, 1982, reenacted the section without change.

§ 23-206. Duty to have vehicle inspected; vehicles to meet standards and requirements.

(a) An owner of a motor vehicle that is registered in this State shall have the vehicle inspected, as required under this subtitle.

(b) A motor vehicle registered in this State, unless exempted or given a waiver under this subtitle, shall meet the standards and requirements of this subtitle. (1979, ch. 421; 1982, ch. 492.)

Effect of amendment. — The 1982 amendment, effective July 1, 1982, reenacted the section without change.

§ 23-206.1. Exemption of ambulances.

(a) Notwithstanding any rule or regulation to the contrary, an ambulance owned or leased by a political subdivision of the State, or by a volunteer fire company or rescue squad, that is registered as an emergency vehicle, as defined in § 11-118 of the Transportation Article, is exempt from mandatory inspections under this subtitle.

(b) An exemption sticker is not required to be displayed on an ambulance described in subsection (a) of this section. (1983, ch. 549.)

Editor's note. — Section 2, ch. 549, Acts 1983, provides that the act shall take effect July 1, 1983.

§ 23-207. Rules and regulations for implementation, administration and enforcement of subtitle; rules and regulations establishing emission standards; required progress reports.

(a) The Administration may adopt rules and regulations as required for purposes of implementation, administration, regulation, and enforcement of the provisions of this subtitle, including rules and regulations that, consistent with federal law, exempt certain vehicles from the inspections under this subtitle.

(b) The Secretary of Health and Mental Hygiene, with the concurrence of the Secretary of Transportation, shall set, by rules and regulations under Title 2 of the Health-Environmental Article emission standards to be used for the inspection of motor vehicles under this subtitle.

(c) The Secretary of Transportation and the Secretary of Health and Mental Hygiene shall furnish a joint report, within 30 days from the date Congress modifies the provisions of the Clean Air Act, to the Legislative Policy Committee, the Senate Constitutional and Public Law Committee, and the House Environmental Matters Committee outlining the status of changes in the Federal Clean Air Act as of that date and all other related and pertinent information. (1979, ch. 421; 1982, ch. 492; ch. 770, § 4; 1983, ch. 323.)

Effect of amendments. — Chapter 492, Acts 1982, effective July 1, 1982, reenacted subsections (a) and (b) without change and added subsection (c).

Chapter 770, Acts 1982, effective July 1, 1982, substituted "shall set, by rules and regulations under Title 2 of the Health-Environmental Article" for "shall, by rules and regulations under Article 43, §§ 690 through 706, establish" in subsection (b) and deleted the former second sentence in that subsection.

The 1983 amendment, effective July 1, 1983, deleted the paragraph designation "(1)" at the beginning of subsection (c) and deleted former paragraph (2) in that subsection, regarding required reports concerning recommended modifications to or repeal of the State's motor vehicle emissions inspection program.

§ 23-208. Termination of program.

(a) Except as provided in subsection (b) of this section, any program adopted under this subtitle terminates on December 31, 1988, unless, prior to its termination, the period of operation is extended by an Act of the General Assembly.

(b) The Windshield Sticker Program adopted under this subtitle terminates no later than December 31, 1984. (1979, ch. 421; 1981, ch. 38; 1982, ch. 492; 1983, chs. 311, 517.)

Effect of amendments. — The 1982 amendment, effective July 1, 1982, substituted "June 30, 1988" for "December 31, 1987" in subsection (a).

Chapter 311, Acts 1983, effective July 1, 1983, substituted "December 31" for "June 30" in subsection (a).

Chapter 517, Acts 1983, effective July 1, 1983, designated the provisions of the section as subsection (a), added the exception and also substituted "December 31" for "June 30" in that subsection, and added subsection (b).

Maryland Law Review. — For article, "Survey of Developments in Maryland Law, 1983-84," see 44 Md. L. Rev. 394 (1985).

§ 23-202. Rules and regulations for establishment of inspection program; establishment of inspection system; location of inspection facilities; contents of rules and regulations; final request for bids.

Inspection of pollution control equipment does not violate search and seizure prohibition. — Inspection and testing of tailpipe and federally mandated pollution control equipment do not violate the Fourth Amendment prohibition against search and seizure. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

Registration suspension due to noncompliance with emissions program does not violate due process. — Even if a vehicle registration is a property interest, suspension or denial of renewal of the registration and removal of license tags for failure to comply with the motor vehicle emissions program does not violate due process as procedural safeguards are adequate; nor does it constitute a taking of property without just compensation since a mere reduction in value is not a taking. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

Motor Vehicle Administration authorized to amend its original regulations. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

§ 23-205. Inspection fees.

Cited in Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

§ 23-206. Duty to have vehicle inspected; vehicles to meet standards and requirements.

Motor vehicle emissions inspection program does not violate equal protection because some rural counties are excluded while others are included or because some classes of vehicles are exempt. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

§ 23-207. Rules and regulations for implementation, administration and enforcement of subtitle; rules and regulations establishing emission standards; required progress reports.

(c) The Secretary of Transportation and the Secretary of Health and Mental Hygiene shall furnish a joint report, within 30 days from the date Congress modifies the provisions of the Clean Air Act, to the Legislative Policy Committee, the Senate Judicial Proceedings Committee, and the House Environmental Matters Committee outlining the status of changes in the Federal Clean Air Act as of that date and all other related and pertinent information. (1985, ch. 19.)

Effect of amendments.

The 1985 amendment, effective July 1, 1985, substituted "Senate Judicial Proceedings Committee" for "Senate Constitutional and Public Law Committee" in subsection (c).

As the remainder of the section was not affected by the amendment, it is not set forth above.

Motor vehicle emissions inspection program does not violate equal protection because some rural counties are excluded while others are included or because some classes of vehicles are exempt. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

Registration suspension due to noncompliance with emissions control program not violative of due process. — Even if vehicle registration is a property interest, suspension or denial of renewal of registration and removal of license tags for failure to comply with motor vehicle emissions program does not violate due process as procedural safeguards are adequate; nor does it constitute a taking of property without just compensation since mere reduction in value is not a taking. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

Motor Vehicle Administration authorized to amend its original regulations. Department of Transp. v. Armacost, 299 Md. 392, 474 A.2d 191 (1984).

Appendix II

- Exhibit 1 — Congressional Requirement for Future VEIP's U.S. Senate Stafford's Letter
- Exhibit 2 — EPA Testimony
- Exhibit 3 — Vehicle Emissions Improvements as a Result of VEIP
- Exhibit 4 — DHMH Analysis of Air Quality Improvement Trends

Exhibit II-1

Exhibit 1

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
WASHINGTON, DC 20510

October 14, 1986

Honorable Norman R. Stone, Jr.
State Senator
7th District
201 James Senate Office Building
Annapolis, MD 21401-1991

Dear Senator Stone:

You have asked for my views on the future treatment of vehicle inspection and maintenance (I/M) programs by the Congress. I can provide you with my observations, but as you undoubtedly know from your own experience, I cannot presume to speak authoritatively for my colleagues in the Senate and or for Members of the House of Representatives.

Evidence is mounting that many areas of the country are having trouble meeting the current ozone standard, while new health information suggests that even the current standard may not be sufficient to protect the public. Faced with this information, I believe the Congress will reaffirm its commitment to requiring I/M programs to help reduce ozone levels.

I also believe the proven value of these programs in alleviating carbon monoxide problems is further reason that Congress will not retreat from the requirement for I/M. Support by the Environmental Protection Agency for the continuation of I/M programs will also, in my judgment, add to the Congressional sentiment to retain, and likely strengthen, existing requirements.

As you may know, I introduced legislation this year that included a provision to improve the elements of an I/M program that relate to emissions of oxides of nitrogen. I expect the Congress to move quickly on clean air issues in the 100th Congress and anticipate that I/M programs will, at the least, remain an important control strategy in the legislation.

I hope this response is helpful to you and the members of your task force.

Sincerely,

Robert T. Stafford
Chairman

RTS/kyc

Exhibit II-2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ANN ARBOR, MICHIGAN 48105

OFFICE OF
AIR AND RADIATION

NOV 13 1986

George Ferreri
State of Maryland
Air Management Administration
201 W. Preston Street
Baltimore, Maryland 21201

Dear Mr. Ferreri:

We appreciate the opportunity to be of assistance in the current deliberations regarding the reauthorization of the Maryland I/M program. This letter contains some of the information discussed at the legislative task force meeting October 7, 1986, in Annapolis. I hope this information will be of use in determining the merits of the Maryland I/M program.

EPA regularly tests hundreds of in-use vehicles every year as part of the ongoing Emission Factor program. These vehicles are recruited directly from individual vehicle owners in areas which do not have I/M programs and represent, as best as can be accomplished, a typical cross section of the condition of the fleet. These vehicles are tested to measure their as-received emission levels and, if deemed necessary, repaired and retested. Sometimes special testing is done to investigate particular in-use problems, such as tampering and misfueling.

Using these data collected from in-use vehicles, we can calculate the emission levels of the current vehicle fleet in the absence of I/M and estimate the proportion of those emissions due to various causes such as tampering, misfueling and malmaintenance. Figure 1 shows graphically how that breakdown would look for the vehicle fleet today. As you can see, the majority of emissions that we estimate from passenger cars for both hydrocarbons (HC) and carbon monoxide (CO) are a result of poor maintenance or tampering and misfueling. These are the vehicle emissions which are addressed by the presence of an I/M program such as Maryland's.

EPA has also been testing vehicles in the Washington D.C. area for the last few years to study the actual effect of I/M programs on vehicle emissions. We have just completed a study which recruited late model cars from the Maryland I/M program. In this study, vehicles which failed the Maryland I/M program were recruited and tested before repairs and then after repairs sufficient to pass the Maryland I/M cutpoints. This study showed that these repairs significantly reduce the overall emissions from the vehicles failing the Maryland I/M program. This has been graphically reproduced in Figure 2.

Another factor facing every air quality planner is the reality of growth. More people means more vehicles and more vehicle emissions. Growth in the last ten years has been offset by the fact that Federal new car emission standards have radically reduced the emissions of motor vehicles. This effect is shown in Figure 3. If all vehicles in Maryland today were still emitting pollutants at the same rate as the average vehicle at the end of 1976, then the emission inventory for passenger cars would be nearly a third higher than it was in 1976 due to the increase in the number of vehicles registered in Maryland.* In fact, the current passenger car emission inventory is nearly half what it was in 1976 due to the Federal Motor Vehicle Control Program (FMVCP).

The Maryland I/M program further reduces the pollutant inventory. Currently the Maryland I/M program accounts for about 16% of the combined benefits of the FMVCP and the Maryland I/M program from 1976 levels. The ability of the FMVCP to offset growth is diminishing, however, since the last, and lowest, new car emission standards were put in place starting with the 1983 model year passenger cars. Using the same methodology as above, the Maryland I/M program now accounts for over half of all of the combined reduction in the passenger car emission levels since 1984. This trend will continue as further FMVCP benefits gradually disappear altogether.

Science and logic would agree that there is a correlation between the amount of CO emissions emitted from cars and the concentration of CO in the ambient air in Maryland. If we assume a one-to-one correspondence between the mobile source CO inventory and the measured ambient levels, the ambient levels measured this year should reflect the reduction in the mobile source CO inventory due to the Maryland I/M program. This would mean that the 12.2 ppm measured in Maryland this year would have been 16.7 ppm without the Maryland I/M program. The reduction in the ambient measured levels in ppm will vary depending on weather, traffic and monitor siting, however, the magnitude of the reduction as a percent will always be a constant for a given evaluation date. The ambient levels for the 1986 year in Maryland with and without the I/M program are shown in Figure 4.

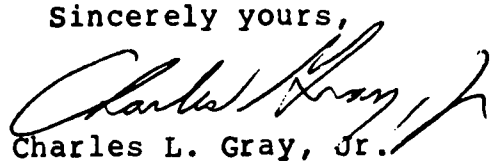
---

* Growth rate for the Maryland fleet was derived from Wards Automotive Yearbook, 1979 and 1986.

In summary, there is a need to control emissions from cars, and past efforts at controlling those emissions have improved the air quality in Maryland from where it would have been had no effort been made. As the effect of the FMVCP approaches its final level, the effects of growth will need to be offset by other strategies. The most promising of these is the control of in-use emissions due to malmaintenance and tampering through periodic vehicle inspections.

If there is further information which would be of value in your deliberations, feel free to contact the Office of Mobile Sources directly or through the Regional office. Thank you for the opportunity to express our views.

Sincerely yours,



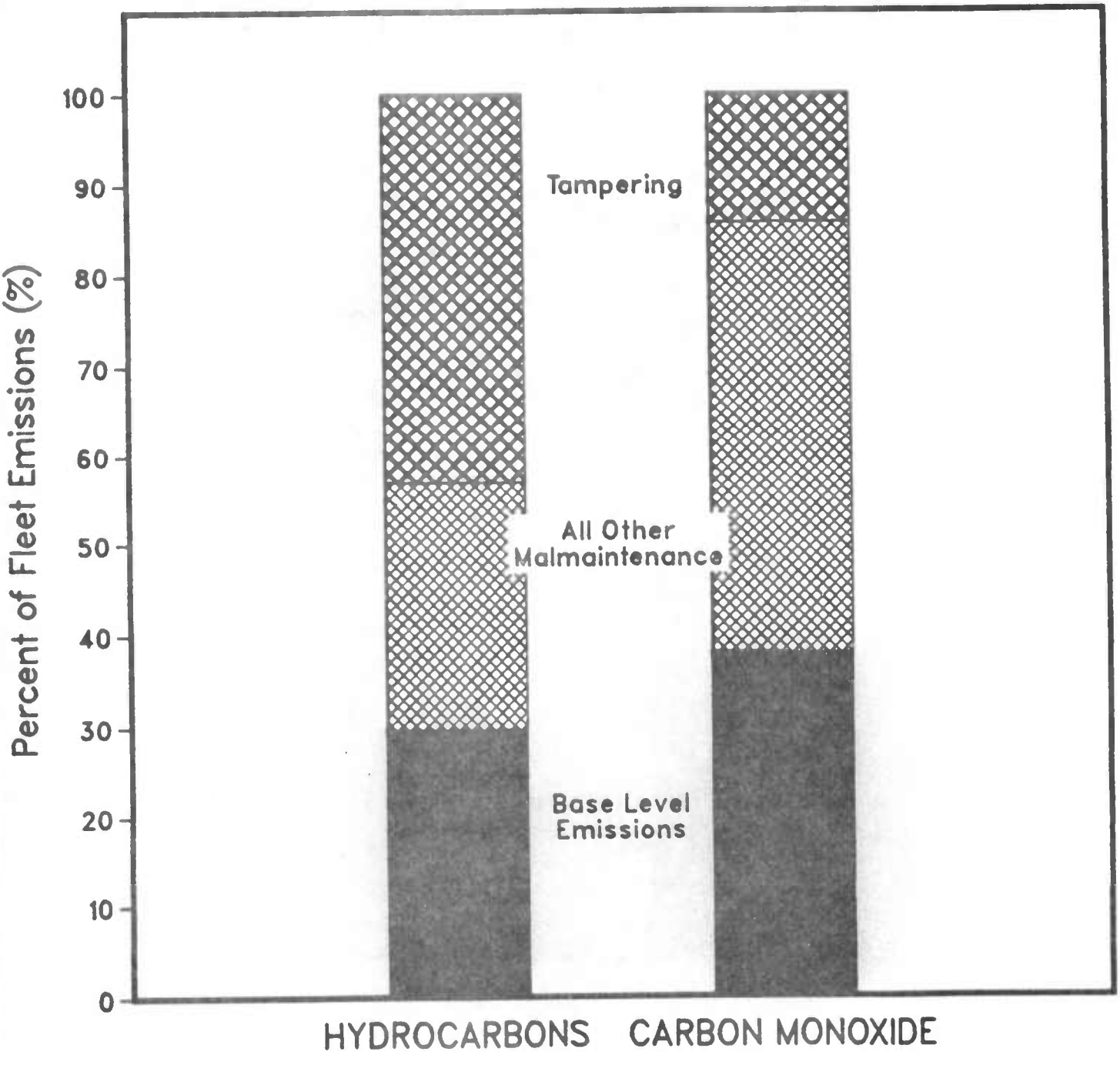
Charles L. Gray, Jr.
Director
Emission Control Technology Division

Enclosures

cc: R. Wilson, OMS
R. Cunningham, Region 3

Figure 1.

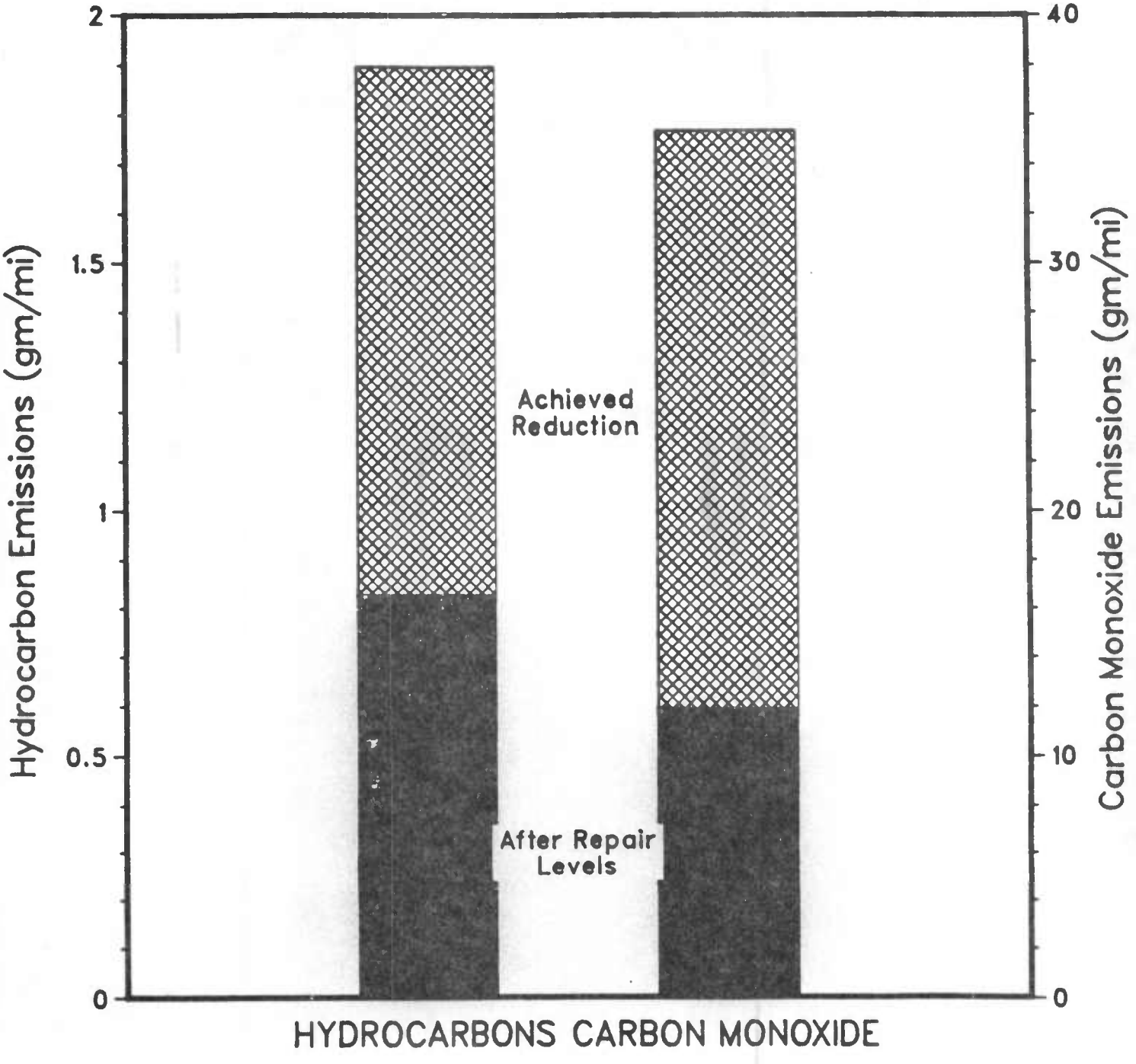
Sources of Passenger Car Emissions Calendar Year 1986



October 1986

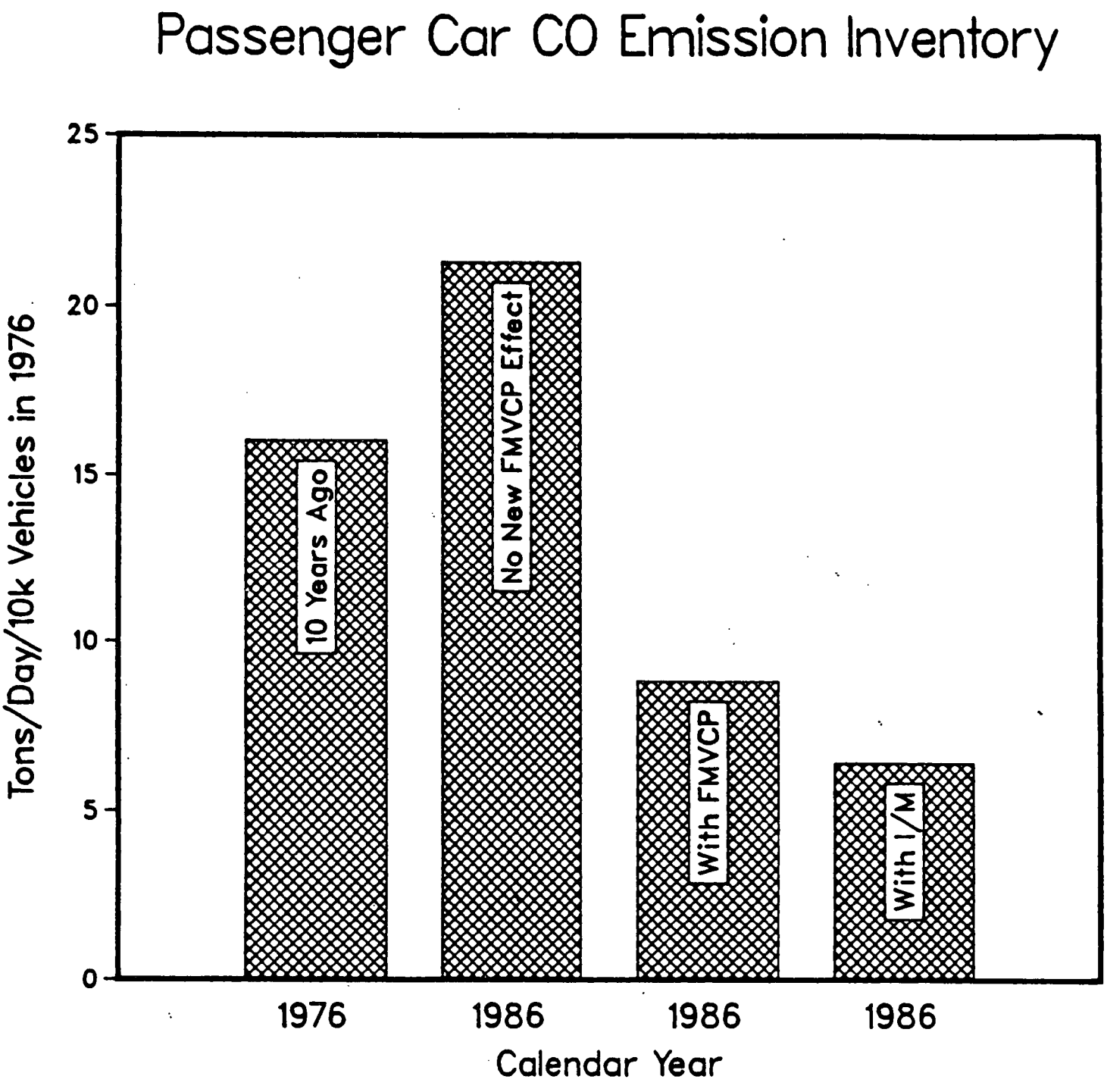
Figure 2.

Exhaust Emission Reductions From I/M Repairs For 1981–1984 Model Year Cars Failing I/M In The Maryland Program Study



October 1986

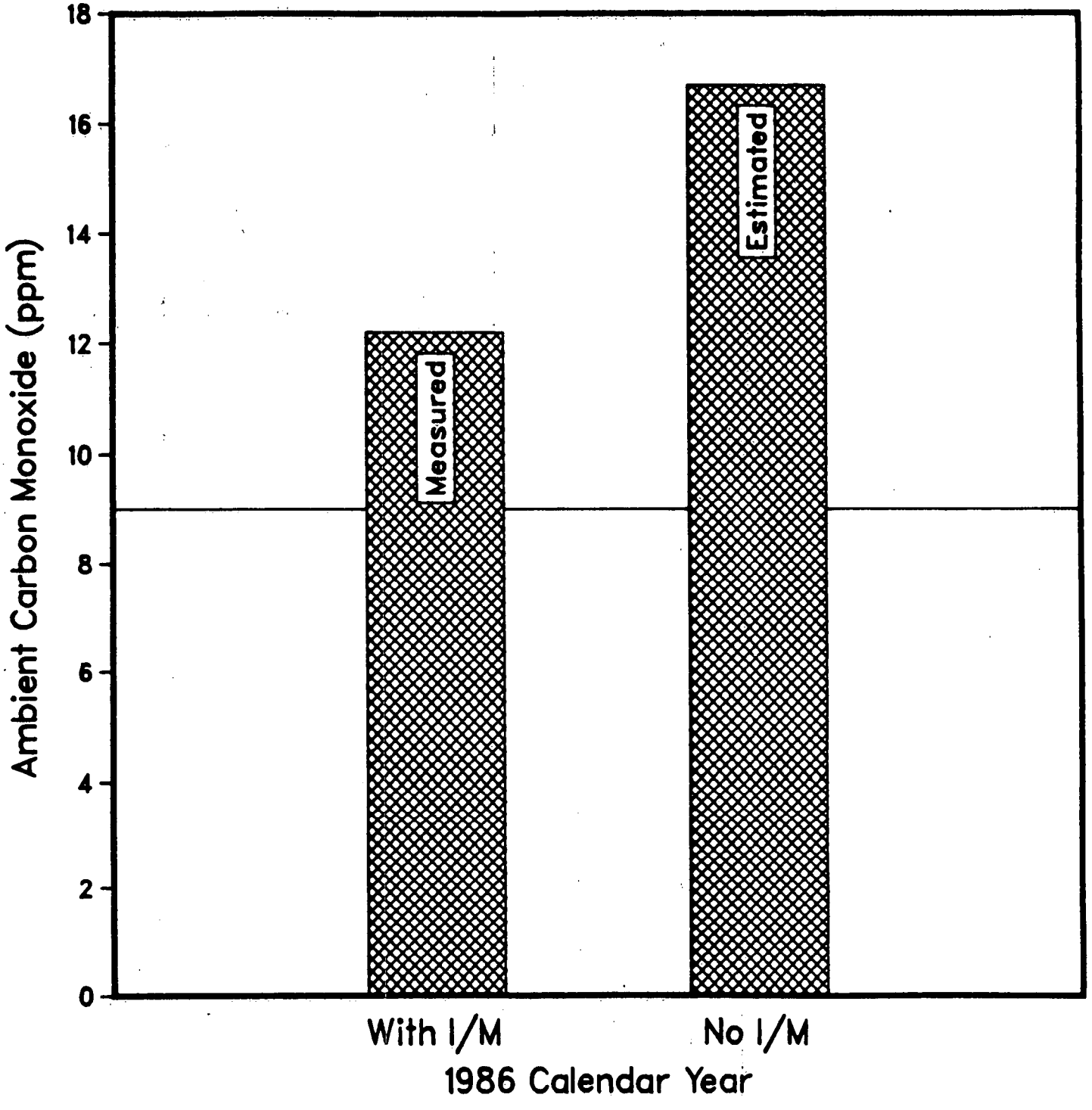
Figure 3.



* No New FMVCP Effect: Assumes that the average vehicle in 1986 will emit the same amount of emissions as the average vehicle did in 1976.

Figure 4.

Maryland Ambient Carbon Monoxide Level In The 1986 Calendar Year



October 1986

The following table documents the improvements in HC and CO emission test scores for failed vehicles after they are repaired. Emission improvements are presented for each model year group subject to VEIP emission standards for each of the three years of VEIP program operation.

Initial test and first retest, after repair, scores are presented. Both the mean test score, X, and standard deviation, S, are provided for each table item. The final column in the table calculates the percentage emission improvement for each item. Note the consistency in emission improvement from year to year.

			INITIAL TEST		FIRST RETEST		
POLLUTANT	DATA YEAR	MODEL YEAR GROUP	X	S	X	S	X (%)
HC	1984	1972-1974	1372	595	660	635	52
		1975-1976	1098	583	553	556	50
		1977-1978	948	562	494	500	48
		1979-1980	755	506	386	419	49
		1981+	612	403	247	326	60
	1985	1972-1974	1196	592	643	601	46
		1975-1976	958	571	509	523	47
		1977-1978	758	527	436	464	42
		1979-1980	619	451	339	388	45
		1981+	467	337	210	283	55
	1986 (to date)	1972-1974	1199	588	631	613	47
		1975-1976	944	555	524	515	44
		1977-1978	745	519	438	459	41
		1979-1980	625	464	348	388	44
		1981+	465	346	222	303	52
CO	1984	1972-1974	5.28	4.00	4.21	3.13	20
		1975-1976	5.38	3.97	3.91	3.13	27
		1977-1978	5.26	3.75	3.69	2.93	30
		1979-1980	4.57	3.61	2.78	2.88	39
		1981+	2.60	3.06	1.24	2.10	52
	1985	1972-1974	5.29	3.93	4.35	3.18	18
		1975-1976	5.48	3.81	3.95	3.08	28
		1977-1978	5.42	3.39	3.67	2.85	32
		1979-1980	4.43	3.27	2.72	2.69	39
		1981+	2.45	2.62	1.10	1.86	55
	1986 (to date)	1972-1974	5.28	3.88	4.15	3.09	21
		1975-1976	5.43	3.75	4.05	3.11	25
		1977-1978	5.34	3.38	3.75	2.81	30
		1979-1980	4.47	3.25	2.76	2.75	38
		1981+	2.43	2.68	1.12	1.95	54

Prepared by: Department of Health and Mental Hygiene

Ozone benefits are more difficult to demonstrate than CO benefits. Quantification of ozone benefits is complicated by the large role that meteorology plays in the ozone formation process. Rather than the immediate formation of CO pollution from CO emissions, ozone forms in the atmosphere over 2-4 hours from the mixing of HC and NO_x emissions in the presence of sunlight. Moreover, several HC emission sources, (area, mobile and stationary), contribute to ozone pollution. Mobile sources account for about 50% of the HC emissions in Baltimore and about 60% of the HC emissions in Washington, D.C.

In contrast to CO, no other states have examined the impact of I/M programs on ambient air levels of ozone, because of the complex meteorology involved. However, ozone benefits from the VEIP can be demonstrated in three ways:

1) a comparison of ozone violations and meteorology in two test years, 1983, just before the VEIP began, and 1986, after the VEIP was operating;

2) a proportionate allocation of the ozone reductions, found between 1983 and 1986, to reductions in HC emission sources; and

3) a relatively sophisticated statistical method developed by the Department of Health and Mental Hygiene to isolate the contributions of area, mobile, and stationary sources to ozone violations.

Test Year Comparison

Two test years, 1983 and 1986, exhibitted similar weather conditions during the ozone season, May through September. Table 1 contains four meteorological statistics that directly affect ozone concentration. Table 1 shows the percentage of possible sunshine and the average wind speed for each year to be very similar. Although the number of days with air stagnation conditions would seem to indicate a major dissimilarity between the two years, the years are not as different as the numbers indicate. There were approximately four days in 1986 with borderline air stagnation conditions.

Table 1. Meteorology Similarities, 1983 and 1986

	1983	1986
% of Possible Sunshine	68.48	69.68
Number of Air Stagnation Days	5	0
Number of Days with Maximum Temp. above 90°F	49	32
Average Wind Speed (mph)	7.9	8.2

Ozone violations typically occur on days when maximum temperatures exceed 90°F. High temperatures may increase the rate of reactions that form ozone, resulting in increased ozone production. Table 1 shows that in 1986 there were 17 fewer days with temperatures greater than 90°F than in 1983. However, there were also 37 fewer days in 1986 with ozone violations. This leads to the conclusion that the improvement in ozone air quality cannot be solely attributed to the somewhat improved 1986 meteorology.

As the previous paragraphs point out, 1983 and 1986 experienced large differences in the number of days violating the ozone standard, despite similar meteorology. In the Baltimore area during 1983 the ozone standard was violated on 49 days, while during 1986 the standard was violated on only 12 days. Similarly, in the Washington, D.C. area during 1983 the ozone standard was violated on 27 days, while during 1986 the standard was violated on only four days. The only major control strategy installed in the intervening years was the VEIP.

Furthermore, many of the summer days when the ozone standard was violated during 1986 were weekend or holiday dates when some industrial sources were closed. Mobile source contributions were proportionately larger on those days, especially the holidays.

Proportionate Allocation

The second highest ozone reading at the prime monitoring site in Edgewood has declined from 185 ppb in 1983 to 151 ppb in 1986, or a difference of 34 ppb. Table 2 presents the parallel decline in HC emissions from three categories: mobile sources, stationary sources and area sources. Mobile source reductions are split into those resulting from the VEIP and those resulting from the Federal Motor Vehicle Control Program (FMVCP). If we allocate the decrease in Edgewood ozone readings, 34 ppb, proportionately to the decreases in HC emissions from the three source categories, then the VEIP accounts for a 7.0 ppb reduction in the ozone readings between 1983 and 1986. Besides the FMVCP, the VEIP is the largest single strategy for reducing ozone.

Table 2. HC Emission Source Trends
Baltimore Area, 1983 to 1986

Emission Source	1983 Tons per Day	1986 Tons per Day	Total Reduction 1983 to 1986	% of Total Reduction 1983 to 1986
Area	62.5	63.5	+1.0	—
Stationary	78.9	58.8	-20.1	36.7
Mobile				
- Baseline	110.1	112.8	+2.6	—
- with FMVCP	112.8	85.8	-27.0	49.2
- with VEIP	85.8	74.5	11.3	50.6
			-54.8	

Statistical Method

A more sophisticated method demonstrating the impact of the VEIP on ozone levels can be generated by correlating emission sources with the resulting ozone levels measured at air monitoring sites. This method uses real data, rather than inferential models. Although other studies have abandoned investigations of the impact of I/M programs on ambient ozone levels because of the complex meterorology involved, DHMH has adopted a simplifying approach that ignores the fine details of the meteorology. This approach correlates input emission sources and output ozone concentrations.

The statistical method considers three emission sources: area, stationary and mobile. The object of the method is to isolate the air quality impact of each of the emission sources. Consequently, the method allows for the possibility that each emissions source category can have a different impact on ambient air levels of ozone. However, since they operate on the same type of mobile emissions, an assumption is made that HC reductions obtained from the VEIP and from the FMVCP can be lumped into a single mobile sources emission category.

Thus, the statistical model represents ozone violation concentrations read at our air monitoring stations as the sum of the contributions from the three sources:

$$C_{ov} = x_{as}\,(AS) + x_{ss}\,(SS) + x_{ms}\,(MS), \qquad [1]$$

where C_{ov} = ozone violation concentrations

AS = area source emissions

SS = stationary source emissions

MS = mobile source emissions

x_i = impact coefficient, converting emissions "i" into ozone violation concentrations.

Focusing on ozone violations demonstrates how emission sources contribute to air quality problems. Impact coefficients demonstrate the importance of each emissions source category in the generation of ozone violations.

Data for the model are individual ozone violations from 1985 and 1986. As the prevailing wind vector sweeps through the metropolitan area, it picks up a select fraction of the total emission sources available. These emissions react in the atmosphere to produce ozone violation concentrations observed at air monitoring stations. Processing the individual violations through the statistical model determines the impact of each of the emission sources on ozone violation concentrations.

Table 3 presents the ozone impact coefficients for each of the three emission source categories. Although both area and stationary sources affect ozone concentrations at about the same level, mobile sources appear to have three times the impact on ozone levels as the other two emission source categories. Thus, it is reasonable to conclude that reductions in mobile source emissions are the most important contributor to controlling ozone violations.

Table 3. Ozone Impact Coefficients

HC Emission Source Category	Ozone Impact Coefficient (ppb ozone/Mg HC emission)
Area	20.7
Stationary	27.6
Mobile	68.6

- statistical correlation: 0.81906

To determine how much the VEIP has contributed to reduction in ozone levels the next step in the statistical analysis multiplies the mobile sources impact coefficient by the HC emission reductions obtained from the VEIP. Two estimates of the VEIP's HC reductions are available. EPA's MOBILE 3 model estimates that a mature I/M program only achieves full benefits after three years of operation. Consequently, the MOBILE 3 model calculated a 9.0 Mg/day HC reduction from the VEIP in Baltimore after 1984, increasing to a mature phase plateau of 11.3 Mg/day after 1986.

Alternatively, estimates of the VEIP's HC reductions can be made from actual test results collected from the VEIP program. Two sources provide HC benefits from the VEIP. Hydrocarbon benefits are obtained from the repair of vehicles that fail the initial VEIP test. In addition, the downward trend in average emission levels for vehicles that pass their initial VEIP test provides preventive maintenance benefits. Table 4 summarizes the HC emission benefits obtained from the VEIP in 1984. Since the goal of this effort is to determine the impact of a mature VEIP on ozone levels, it is necessary to project our 1984 estimate forward to 1986 using a factor derived from EPA's MOBILE 3 model:

$$\text{1986 VEIP Impact} = (\text{1984 VEIP Impact}) \times \left(\frac{\text{1986 MOBILE 3 Impact}}{\text{1984 MOBILE 3 Impact}}\right) \quad [2]$$

$$= (6.77 \text{ Mg/day}) \times \left(\frac{11.3 \text{ Mg/day}}{9.0 \text{ Mg/day}}\right)$$

$$= 8.5 \text{ Mg/day.}$$

Table 4. HC Emission Benefits Generated from 1984 VEIP Results

Vehicle Category	Repair Benefits (Mg/day)	Preventive Maintenance Benefits (Mg/day)	Total Benefits (Mg/day)
Light-Duty Vehicles	2.52	2.99	5.51
Light-Duty Trucks	.62	.64	1.26
All Vehicles	3.14	3.63	6.77

Appendix III

- Exhibit 1 — Service Station Association - Comparison of Programs
- Exhibit 2 — Systems Control, Inc., Comparison of Programs
- Exhibit 3 — EPA Audit of Maryland VEIP
- Exhibit 4 — DHMH Analysis of Extending Geographic Coverage

PROPOSAL FOR A CENTRALIZED

VEHICLE EMISSIONS INSPECTION PROGRAM

WITH A DECENTRALIZED RETEST PROVISION

THIS PROPOSAL WAS SUPPORTED BY:

THE POTOMAC REGION, AMERICAN AUTOMOBILE ASSOCIATION

THE AUTOMOBILE CLUB OF MARYLAND (A.A.A.)

THE NATIONAL CAPITOL AREA TRANSPORTATION FEDERATION

THE GREATER WASHINGTON/MARYLAND SERVICE STATION AND AUTOMOTIVE REPAIR ASSOCIATION

THE MID-ATLANTIC PETROLEUM DISTRIBUTORS' ASSOCIATION

In 1985 GWMSSARA successfully met every question, concern and challenge to this proposal. The Air Management Administration agreed to this proposal. The Motor Vehicle Administration objected on the grounds that they were unable to process late arriving information. In order to address that concern we suggested the following amendment.

Article - Transportation 23-204.1

An owner of the vehicle submits the vehicle for retest not later than 21 days after the calendar month in which the vehicle is scheduled for an initial emission test.

In the final analysis this retest program may affect over 250,000 voters and motor vehicle owners. The cost, even taking the high estimates of $200,000 translates into less than $1.00 per vehicle. This is an opportunity for the legislature to have a positive impact on the consumer by alleviating a major irritant in a highly unpopular program.

POINTS

* Those service stations currently participating in the State Vehicle Inspection Program are regularly inspected by the State Police. Those stations participating in the State Administered Certified Vehicle Emissions Repair Facility Program are also regularly inspected, but by the Air Management Administration, in order to determine that they have the proper equipmenet and that the State required non-dispersive infrared emission analyzer is in good working condition and calibrated properly. Thus a program of facility inspection is in place and could be easily expanded.

* The Consumer Protection Division of the Office of the Attorney General currently operates an investigative program for fraud at all auto service facilities. Perhaps this group could be used to watchdog this program in in order to protect the consumer.

* If the program created a problem for the consumer, the seven affected jurisdictions have the most active consumer protection offices in the State.

* The marketplace would act as a "policeman" as well. Consumers are not likely to return to a facility after a bad experience.

The GWMSSARA is ready to work with the legislature, as well as the state agencies charged with administering the Vehicle Emissions Inspection Program, to shape the necessary regulations to meet the needs of the State as well as the needs of the consumers and voters. To this end we have made every effort to meet with MVA and discuss their concerns with our proposal.

PROPOSAL FOR A DECENTRALIZED
VEHICLE EMISSIONS INSPECTION PROGRAM

Cost to Consumer	-	$9.00
Rebate to State	-	($2.00)
Gross Income to Dealer	-	$7.00

Inspection - Tailpipe and up to 6 parameters

Equipment - BAR 84 Emissions Analyzer
Approved by Air Management Administration

Dealer Fee - $100.00 Annually. Payable to State to defray costs of information processing.

Participation - 450 service stations, garages and automobile dealers.

Data Collection - Data tapes retrieved by equipment manufacturer and transferred onto a master tape for delivery to MVA. Master tape would be compatible with MVA equipment.

Economics

Monthly Lease	-	$225.00
Maintenance Contract	-	$125.00 includes data pickup and transfer charge
Replacement Parts	-	$ 20.00
		$370.00

Technology

BAR 84 Emissions Analyzer - All experts agree this equipment meets any requirements for accuracy currently in use. This equipment is used in California. The data cannot be tampered with by service personnel. It is possible to initiate security procedures to preserve tapes. Equipment can be programmed to self-calibrate, checks calibration daily when it is turned on or off. New Jersey, Massachusetts and New York use these machines. Suppliers generally set up a system to respond to equipment failure.

PROPOSAL FOR A CENTRALIZED VEHICLE EMISSIONS INSPECTION PROGRAM

WITH A DECENTRALIZED RETEST PROGRAM

The following proposal reflects the position outlined in HB 239, passed in the House of Delegates in 1985 by a 104-4 vote, and which the Senate failed to act upon before the end of that session.

The Greater Washington/Maryland Service Station and Automotive Repair Association (GWMSSARA) supports a task force recommendation that provides consumer choice by allowing the facility that performs a low emissions tune-up on a failed vehicle, to conduct the vehicle emissions retest if the facility meets state requirements. The GWMSSARA calls upon the members of the Task Force to include language in their final report endorsing the concept of such a program.

PROPOSED AMENDMENTS

Amend Transportation Article 23-204.1 to read:

(A) A VEHICLE THAT FAILS TO PASS THE EMISSIONS TEST AND IS REQUIRED BY THE ADMINISTRATION TO BE RETESTED MAY BE RETESTED AT ANY REPAIR FACILITY THAT PERFORMS A LOW EMISSIONS TUNE-UP TO THE VEHICLE, IF:

(1) THE REPAIR FACILITY MEETS THE REQUIREMENTS OF THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE.

(2) AN OWNER OF THE VEHICLE SUBMITS THE VEHICLE FOR THE RETEST NOT LATER THAN THE 21ST DAY OF THE CALENDAR MONTH IMMEDIATELY AFTER THE CALENDAR MONTH IN WHICH THE VEHICLE IS SCHEDULED BY THE ADMINISTRATION FOR AN INITIAL EMISSIONS TEST;

(3) THE REPAIR FACILITY SENDS A RECORD OF THE RESULT OF THE RETEST TO THE ADMINISTRATION;

(4) THE RETEST IS THE FIRST RETEST OF THE VEHICLE; AND

(5) THE RETEST IS CONDUCTED WITHOUT CHARGE IF THE REPAIR FACILITY HAS PERFORMED THE LOW EMISSIONS TUNE-UP.

(B) THE ADMINISTATION SHALL ASSESS AN ANNUAL CERTIFICATION FEE OF AT LEAST $50 ON ALL PARTICIPATING REPAIR FACILITIES.

A REPAIR FACILITY THAT REQUESTS CERTIFICATION UNDER THIS SECTION SHALL [illegible] EQUIPMENT APPROVED BY THE DEPARTMENT OF HEALTH AND MENTAL HYGIENE.

SPECIFICS

COST TO CONSUMER: NONE.

EQUIPMENT: BAR 84 EMISSIONS ANALYZER,
APPROVED BY AIR MANAGEMENT ADMINISTRATION.

DATA COLLECTION: REQUIRED SECURE CASSETTE TAPE TO BE RETRIEVED BY THE AIR MANAGEMENT ADMINISTRATION AT END OF 21-DAY PERIOD, ALLOWING UP TO 10 DAYS TO TRANSFER RETEST RESULTS.

INSPECTION: PERFORMED AS REQUIRED; TAILPIPE AND UP TO SIX PARAMETERS.

	Centralized Test System	Decentralized Test System
STOPS BY MOTORIST	Three stops: 1.Testing at central site 2.Repairs at service station: 3.Retesting -- return to central test site.	One Stop: Testing, repairs and retesting completed with one stop at service station.
MONOPOLY VS. FREE ENTERPRISE	Out-of-state monopoly:	Free Enterprise: Testing brings business to existing service stations, repair garages and auto dealers.
INCONVENIENCE	1. Three stops by motorist. 2. Limited number of test sites -- more travel by motorist, longer wait. 3. No options at test site -- must wait with car for testing.	1. One stop by motorist. 2. Hundreds of test sites at local auto dealers, servic stations and repair garage 3. More options at test site may leave car to be tested and return later; no need to wait.
HOURS OF SERVICE	Business hours: 8:00 a.m. to 5:00 p.m. Monday-Friday.	24 hours a day, seven days a week.
FRAUD CONTROL	1. Automated computerized inspection equipment. 2. No control over service stations making repairs.	1. Automated computerized inspection equiment. 2. Licensee of I/M programs will lose license for improper repairs or fraudulent actions.
COSTS	1. Inspection fees. 2. Repair fees. 3. Hidden costs: lost time to motorists; duplicate equipment costs; trips made to test site and repair site; special facility operation, etc.	1. Inspection fees. 2. Repair fees.

Submitted by: Greater Washington/Maryland Service Station and Automotive Repair Association

CENTRALIZED vs DECENTRALIZED

Exhibit III-2

TYPE OF PROGRAM / FEATURE	MOTORIST'S INSPECTION FEE	INSPECTION TIME	TEST EQUIPMENT ACCURACY	DATA COLLECTION AND PROCESSING	INPUT DATA ERROR RATE	EQUIPMENT DOWN TIME	CONSUMER CONFIDENCE
CENTRALIZED	$0 TO $10 PER TEST	1.5 TO 2.5 MINUTES	HIGH ACCURACY (HOURLY CALIBRATION)	REAL - TIME IMMEDIATE ACCESS TO DATA NO LOSS OF DATA	VERY LOW, OPERATOR ABLE TO CROSS CHECK	REPAIRED WITHIN 1 TO 3 HOURS	MORE
DECENTRALIZED (AUTOMATED BAR 84)	$5 TO $50 PER TEST	5 TO 10 MINUTES	NOT AS ACCURATE (WEEKLY CALIBRATION)	MUST PROCESS CASSETTE OFF-LINE ONTO 9 TRACK, NO IMMEDIATE ACCESS TO DATA, MAY TAKE ONE TO THREE MONTHS TO EVALUATE DATA, AND CAN HAVE LOSS OF DATA	HIGH, OPERATOR CANNOT CROSS CHECK DATA INPUTTED	GARAGE WILL NOT HAVE ABILITY TO REPAIR EQUIPMENT. MUST WAIT FOR LOANER OR MANUFACTURER TO REPAIR	LESS
DECENTRALIZED (MANUAL BAR 74, BAR 80)	$4 TO $10 PER TEST	7 TO 15 MINUTES	LOW ACCURACY (CALIBRATION NOT CONTROLLED AUTOMATICALLY)	MANUAL, STATE WILL BE UNABLE TO EVALUATE ALL DATA SINCE NOT COMPUTERIZED	VERY HIGH, OPERATOR MUST INPUT DATA & PERFORM TEST MANUALLY	1 TO 7 DAYS GARAGE MUST WAIT FOR MANUFACTURER	LESS

COMPARISON MATRIX

CENTRALIZED vs DECENTRALIZED

TYPE OF PROGRAM / FEATURE	CONSUMER OFFICE/WAIVER FUNCTION	CONSUMER CONVENIENCE/ Driving Time To Stations	CONSUMER CONVENIENCE/ Waiting Time For Inspections	CONFLICT OF INTEREST	STATE'S ADMINISTRATIVE COST	FAILURE RATE	EASE OF PROGRAM CHANGE
CENTRALIZED	ON-SITE (SAME TRIP)	VARIES DEPENDING ON DISTANCE TO FACILITY	GOOD (AVERAGE WAITING TIME LESS THAN TEN MINUTES)	NONE	MINIMUM	WITHIN ACCEPTABLE RANGE	LOW COST
DECENTRALIZED (AUTOMATED BAR 84)	OFF-SITE (ADDITIONAL TRIP) EQUIPMENT. MUST WAIT FOR LOANER OR MANUFACTURER TO REPAIR	GOOD	MAY BE POOR (CONSUMER MAY HAVE TO LEAVE CAR)	POTENTIAL	HIGH	MANY WELL BELOW DESIGN RATE	COSTLY
DECENTRALIZED (MANUAL BAR 74, BAR 80)	OFF-SITE (ADDITIONAL TRIP)	GOOD	MAY BE POOR (CONSUMER MAY HAVE TO LEAVE CAR)	POTENTIAL	HIGH		COSTLY

Submitted by:
Systems Control, Inc.

United States
Environmental Protection
Agency

Region 3
841 CHESTNUT BUILDING
PHILADELPHIA, PENNSYLVANIA 19107 (215) 597-9825

Exhibit III-3

Mr. Bruce Diehl, Manager
Vehicle Emissions Inspection Program
Motor Vehicle Administration
6601 Ritchie Highway, NE
Glen Burnie, MD 21062

EPA Environmental News

FIRST CLASS MAIL

Contact: Hal Yates
(215) 597-9825
86-143, August 22, 1986

FOR IMMEDIATE RELEASE

EPA COMPLETES AUDIT OF MARYLAND'S VEHICLE EMISSIONS INSPECTION PROGRAM

PHILADELPHIA, PA - - The U.S. Environmental Protection Agency (EPA) has issued its audit report of Maryland's Vehicle Emissions Inspection Program. Based on its review, EPA has determined that the Maryland Air Management Administration and the Motor Vehicle Administration are administering an effective vehicle Inspection and Maintenance (I/M) program. The objective of the program is to improve air quality by reducing vehicle emissions through proper adjustment and maintenance of the engine components. The emission reductions resulting from the program are an essential element in Maryland's strategy for attaining the national ambient air quality standards for carbon monoxide and ozone as required by the Clean Air Act.

The Maryland Air Management Administration has established the basic parameters of the I/M program and assisted the Motor Vehicle Administration (MVA) in incorporating these requirements into regulations and procedures. The MVA has the basic responsibility for managing and implementing the inspection program. The program is operated under contract by Systems Control, Inc.

"Maryland has a noteworthy emissions program that the State can be proud of," commented Ray Cunningham, EPA Region III's Air Management Division Director. "The integrity of the program's operation on a day-to-day basis is very high, and the enforcement process is excellent." He added that the State has an outstanding consumer outreach program which includes distribution of numerous brochures and a highly used consumer hotline which provides information and answers to consumer questions.

"This highly successful program is a major factor in providing a healthful environment for the citizens of Maryland," Cunningham said.

# # #

Maryland I/M Audit Report

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Mr. Bruce Diehl
Manager, VEIP
Motor Vehicle Administration
Maryland Department of Transportation
6601 Ritchie Highway, N.E.
Glen Burnie, MD 21062

Dear Mr. Diehl:

Enclosed is the final report of the Inspection/Maintenance audit conducted in Maryland on November 19, 20 and 21, 1985. The final report includes the original information that was in the draft report, plus the comments and material you submitted on May 16, 1986. Your responses to our recommendations have been listed in a new Section V. New appendices F-H include the VEIP Inspection Checklist, Repair Record, Test Procedure Modifications, and the new Vehicle Failure Brochure.

On behalf of this Office, our Ann Arbor facility, and Headquarters, I want to thank you for the cooperativeness you and your staff exhibited during the audit. Based on comments I've received from the EPA audit staff, the Maryland review went very well and the positive attitude by both the MVA and MAMA participants was greatly appreciated. I might also add that we were especially pleased to see that many of the recommendations we made have already been acted upon as stated in your May 16, 1986 response to the draft report. We thank you for acting quickly on them.

In closing, based on what we have observed, Maryland has a noteworthy vehicle emissions inspection program that the State can truly be proud of. Keep up the good work and please don't hesitate to contact us if we can be of any assistance.

Sincerely,

W. Ray Cunningham, Director
Air Management Division

Enclosure

cc: G. Ferreri, Director
Maryland Air Management Administration

Executive Summary

Maryland I/M Audit

This report highlights the findings of the Maryland Vehicle Inspection and Maintenance (I/M) Program Audit conducted during November 19-21, 1985 by the Environmental Protection Agency.

For the most part, Maryland's I/M program was found to be operating very well and is capably managed. The integrity of the program's operation on a day-to-day basis is very high and the enforcement process is excellent. In addition, the State has an outstanding consumer outreach program which includes distribution of numerous brochures and a highly used consumer assistance hotline.

The audit revealed very few major operating problems - the most serious being a high waiver rate and inconsistencies observed with the preconditioning of vehicles. With a waiver rate of nearly 20%, one in five vehicles failing the emissions test still continues to emit carbon monoxide and hydrocarbons above standards. Although Maryland's large geographic area and model year coverage gives the State a wide margin of safety so that it can "afford" such a waiver rate and still meet the SIP's RACT requirement, the effectiveness of an otherwise superior program is undermined. EPA strongly encourages Maryland to examine this matter to determine the nature of the waiver problem, monitor the quality of repairs performed by repair facilities, and consider modifying the

regulations governing waivers. EPA also recommends that the MVA personnel perform tampering checks more carefully than was observed during lane audits.

Another problem observed involved inconsistent preconditioning of vehicles before the emission tests conducted by the lane inspectors. These inconsisnent procedures may impact on the accuracy of the emissions test and this is a matter of concern. EPA feels that MAMA, MUA and SCI continue to monitor preconditioning procedures and take necessary corrective measures.

This report addresses the problems and makes recommendations for improving the deficiences noted. Nevertheless, the Motor Vehicle Administration, the Air Management Administration, and the I/M contractor should be commended for their efforts in administering a notable I/M program.

I. Introduction

On November 19, 20, and 21, 1985, the Environmental Protection Agency (EPA) audited the Maryland Vehicle Emissions Inspection and Maintenance (I/M) Program. The I/M audit, which is a subpart of the National Air Audit System, was developed by EPA to assess each state's progress in implementing Clean Air Act requirements for mobile sources.

Prior to the audit, the Maryland Air Management Administration (MAMA) completed a copy of EPA's I/M audit questionnaire. This questionnaire was the basis for discussion at the opening meeting on the morning of November 19, 1985 among representatives from EPA, MAMA, and Maryland Motor Vehicle Administration (MVA). (A list of those persons participating in the audit can be found in Appendix A). Later that day, the EPA audit team divided into two groups and each visited a different inspection station operated by the Systems Control, Incorporated (SCI) contractor. For the next two days, several test stations, re-inspection stations and fleet stations were visited. The audit closed with an exit meeting in which EPA discussed the preliminary audit findings with the MAMA and MVA representatives.

II. Program Description

The Maryland Vehicle Inspection Program, which began in February 1984, is a centralized contractor-run program that is enforced by data-linked vehicle registration. The SCI contractor conducts the emissions tests at ten centralized testing stations throughout the Baltimore and Washington

metropolitan areas. Approximately 1.7 million vehicles are subject to the emissions test including company fleets. Failing vehicles are repaired at Certified Emission Repair Facilities (CERF's), or private garages, and must then be retested at a State inspection facility.

The MAMA had established the basic parameters of the I/M program to meet the air quality goals in the State Implementation Plan (SIP); geographic area, fleet coverage, failure rate, emission analyzers, and quality control and assurance procedures were taken into account. The MVA in conjunction with the MAMA, incorporated these requirements into regulations and procedures and have the responsibility for seeing that the program is properly operated. See Appendix B for an outline of the program and Appendix C for the MVA regulations.

III. Findings

A. Inspection Test Procedure

The Maryland I/M test procedure uses a preconditioned idle test with compatible BAR 84 analyzers that yield computerized analyses of emissions readings. The test is administered by SCI attendants and begins when the attendant logs in a vehicle's tag number into the computer. Information on the make, model year, engine size, the vehicle identification number and whether or not the vehicle is subject to the restart procedure, then appears on the computer monitor via the cross-linked data registration system. The attendant then checks to see that the owner has brought the correct vehicle for testing.

Vehicles are required by regulation to have a 30 second preconditioning cycle at 2500 rpm. This speed is not measured by a tachometer, rather a light comes on and remains lit for 30 seconds indicating to the motorist to step on the gas pedal during this period. While the computer controls the timing and estabishes the proper cutpoints, the attendant gives the verbal instructions and then proceeds with the test. The results of each test are transmitted to SCI's central computer and collected onto tapes for MVA's use each month. The motorist also receives a printout of his vehicle's reading at the time of the test.

The EPA auditors observed many inconsistencies in the way tests were conducted, particularly the way the preconditioning phase was administered by the attendants. Some attendants gave little or no instructions, while others were very specific in their explanations. Instructions ranged from "step on the gas" to "press the pedal down half way until the promptlight goes off." This is a concern since if the 2500 rpm level for proper preconditioning is not achieved, improper emission test results may occur. Other minor problems with preconditioning included attendants not instructing motorists to turn off all accessories, and not using tail pipe extenders when needed to achieve a 10-inch probe insertion depth. These inconsistensies varied between attendants and stations. Preconditioning is an important part of the emission test and if

improperly done, could bear directly on the results.

One other inconsistency dealt with the Ford restart test. Some stations restarted all 1980 and newer Fords, regardless of engine size. Other stations restarted only 1980 and newer Ford V-8 engines. Restarting all 1980 and newer Fords seemed to work more effectively avoiding any possibility of misclassification of engine type and missed restarting procedures. (It is understood that the restarting all 1980 and newer Fords has recently been instituted, therefore, better consistency and efficiency is expected.

B. Emission Standards

The State's I/M emission standards were designed to fail a certain percent of the vehicles inspected. Based on the designed number of failed vehicles which are then repaired, an estimation can be made of the motor vehicle emission reductions gained from the implementation of the I/M program. The I/M program approved in Maryland's State Implementation Plan (SIP) was designed to meet a 20% stringency factor for both the Metropolitan Baltimore Intrastate Air Quality Control Region and the Maryland Portion of the National Capital Interstate Air Quality Control Region. The estimated emissions reductions credit expected as a result of the current failure rate is 35%.

1. Failure Rate

Maryland's emission standards vary depending on the age and weight class of the vehicle. The MAMA conducts a routine analysis to determine the continuing adequacy of the established cutpoints. The cutpoints were recently tightened in January 1985 (See Appendix B).

Records of the program showed an overall failure rate for 1984 of 14.8 percent. The first three quarters of 1985 indicated that the failure rate ranged between 13.5 percent and 14.7 percent. Analysis of the standard cutpoint groups by year of vehicle shows the expected differences between pre and post 1981 vehicles. The older model year vehicles fail at rates very close to the design 20% rate. The 1981 and newer model year vehicles had a much lower failure rate (See Table 1). The low failure rate of newer vehicles can be attributed to better engine design and improvements in the emissions control technology. EPA does not feel Maryland has a problem with its failure rate.

2. Waiver Rate and Procedures

Maryland allows vehicle owners to apply for a one year waiver if they meet either of the following conditions: 1) Fail the initial test and show evidence of spending $50.00 for a low emissions tune-up within 30 days prior to taking the test (second test not required), or 2) fail the retest after having a low emissions tune-up (spending $50.00 is not necessary) or spending

$50.00 for a low emissions tune-up within 30 days after the first test. Waiver applicants must show receipts and have their mechanics complete a standard form indicating what repairs were made associated with a low emissions tune-up. In addition, the vehicle must undergo a full tampering check to verify that the emissions control components have not been tampered with to be eligible for a waiver.

Unfortunately, these waiver conditions, which were set by the State Legislature, constitute a major problem in Maryland's I/M program as representative of the high waiver rate. Although many vehicles are identified by the State's efforts as high emitters, approximately 20% of vehicles go without adequate repairs. In 1984, there were 35,734 waivers granted and there have been 34,943 waivers granted just from January 1, 1985 to October 31, 1985. Table 2 shows the percentage of waiver rates granted during the month of October 1985 and the previous five quarters.

EPA observed some waiver applications being processed. Most of the procedures were followed according to the State regulations. On several occassions, however, the tampering inspections were not performed very thoroughly. (See Section E for more details on the tampering inspection findings). As a result, it is felt more waivers may have been granted than should have been.

Maryland is in the process of preparing a report for the Legislature on the I/M program. An analysis done in connection with that report indicates that the average repair cost for vehicles passing the retest was $51.00 and the average cost for waived vehicles was $91.00. EPA's cursory review at the audit showed that during the most recent month of the program, 40 percent of the repair costs were under $50.00. Some motorists had spent as little as $18.00, while only three had spent more than $100.00. It would be helpful for the State to use the mode repair costs, as well as the mean, when evaluating repair costs. It might also be appropriate for Maryland to drop the low emissions tune-up criteria for waiver application and to adopt a straight cost limit waiver. The straight cost limit may prevent some consumers from paying high amounts for worthless repairs.

While the reason for the high waiver rate is not clear and bears further investigation, we suspect that the cause may be attributable to the quality of repairs performed on vehicles. The relatively high failure rate for retested vehicles is the basis for this assumption. Nearly 33 percent of all failing vehicles also fail the first retest, and more than 40 percent of these vehicles fail subsequent retests.

Estimating the relative emissions reduction in idle scores between waived vehicles and successfully repaired vehicles could probably help to identify the repair effectiveness. Currently, Maryland has been able to identify the idle score emissions reduction between vehicles that fail the original test and vehicles that take a second test. These records, for repaired and waived vehicles combined, indicate a 3.5 percent reduction in hydrocarbon emissions and a 41 percent reduction in carbon monoxide emissions. Ideally, isolating the emissions reduction attributable to waived vehicles and the emissions reduction from passing vehicles would give a much clearer picture of the relative emissions reductions, and perhaps give a general idea about the nature of the quality of repairs.

One other concern about the high waiver rate is that the emissions credit, which is derived from emissions reductions gained through the application of the I/M program, is based on the assumption that all failing vehicles be repaired to pass. Comparison of the mean idle scores on the final test for waived vehicles to the standards, shows waived vehicles to be considerably above the standards for each respective model year group (See Table 3). The net result is that some portion of the credit is lost due to the waived vehicles. Once again, if the emissions reduction attributable to waived vehicles can be isolated from repaired vehicles, we would have clearer picture of the emissions credit and effectiveness of the I/M program.

C. Analyzer Maintenance and Calibration

The SCI contractor maintains, calibrates and services the analyzers at each of the State inspection lanes once a month. Since the analyzers are hooked up to a mainframe computer at SCI headquarters, the analyzers are continuously monitored for performance. Each morning, a technician reviews a "drift report" documenting the prior day's hourly gas span calibrations. Should the readings appear to be drifting too far off, a technician checks the analyzer.

Responsibility for the monthly audits belongs to the MAMA. The State auditors check the analyzers with high, medium, and low scale gas, performing both a pre-audit and post-audit check for verification. During the audit, the EPA auditors found all analyzers at the State lanes in proper calibration. However, some of the analyzers checked at the fleet and CERF stations were not properly calibrated. In two CERF cases, the analyzers were broken. Records of the CERF and fleet analyzer calibrations show that during the six-month period between May and October 1985, roughly 33 percent of the CERF analyzers and 17.3 percent of the Fleet inspection station analyzers failed the audit. State auditors are required to inform stations that fail that the analyzers must be taken out of service and that emissions testing may not be conducted until the analyzers have been repaired and re-audited. During the audit, EPA auditors found two stations needing to be closed for emissions testing.

D. Enforcement Process

The MVA is responsible for the enforcement of the emissions inspection program. EPA auditors found the MVA's enforcement process to be very well coordinated and effective. No problems were encounted.

The mechanism for inspection notification and enforcement is triggered by computer, which uses information generated from the vehicle registration database. Notices for testing are generated no later than the first day of the month prior to a vehicle's testing. At the same time the notices for testing are generated, the State provides SCI information on the vehicles scheduled that month for testing. At the end of each month, SCI sends a tape of all completed inspections to MVA. Then, MVA reviews the tapes and sends all delinquent vehicle owners a registration suspension notice, warning the owners that they may be subject to an impending suspension for not complying. If, by the end of the month in which the suspension notice was mailed, the owner has not had his vehicle tested, MVA sends a summons letter notifying the owner of registration suspension and an administrative hearing date is set. The owner has the opportunity to resolve the situation by providing MVA with proof that the vehicle has been tested. For every month overdue, vehicles owners must pay an additional late fee of $5.00 at the time of testing.

Each month SCI produces a compliance report (the "aging report") which demonstrates the effectiveness of Maryland's enforcement program. On the average, between 25 and 31 percent of the vehicles are not tested during their scheduled testing period. Between 50 to 70 percent of the delinquent vehicles come in for testing the following month after the owners receive a suspension notice. The percent of vehicles out of compliance decreases again by about 50 percent after owners receive a summons. (See Table 4 on Enforcement Statistics). At the end of a twelve month period, the percent of vehicles out of compliance is roughly 0.33 percent. This small percentage may consist of those vehicles no longer subject to the program, such as those driven by students outside the area or vehicles that have been junked.

Maryland's enforcement process is not only effective in bringing vehicles into compliance, but also identifying those vehicles no longer subject to the program. MVA officials have noticed a side benefit in that it has forced beneficial changes in the registration database.

E. Tampering Procedures

Maryland's tampering inspection program applies only to those vehicles subject to waivers or for those undergoing a change of ownership. Vehicles undergoing a change of ownership are checked only for inlet restrictors and catalytic converters. Vehicles subject to waivers receive a more comprehensive tampering check.

During the audit, the EPA team viewed several tampering inspection of vehicles applying for I/M waivers. Though the tampering inspection requirements for waiver applications are satisfactory, it is not felt they are being uniformly applied by the MVA inspectors.

The State's requirements are that all components of the emissions control system are to be in place and operable as determined by a visual check. In practice, however, not all components are consistently inspected by all the inspectors. Rarely did the MVA inspector ever consult a manual or check under the vehicle's hood for the label specifying the emission control equipment for that particular vehicle. In some cases, it was observed that inlet restrictors were not checked. It sometimes appeared that the inspectors were more concerned with ascetaining the presence of purchased replacements parts, rather than the emissions control components.

Although no set routine for tampering inspections was evident, inspectors were very informative to vehicle owners about repairs. While it is beneficial that inspectors were suggesting possible remedies for failing vehicles, and important they were checking for the stated repairs, it is equally important that they perform consistent tampering inspections. Without a consistent tampering check, the waiver program is undetermined.

F. Audit and Surveillance Procedures

Maryland's station audit and surveillance activities go beyond an average program. As mentioned earlier, monthly audits are performed by MAMA that include pre-audit and post-audit checks on analyzers. Covert studies are also performed using unmarked vehicles on an as needed basis.

EPA found no problem with the State of Maryland's audit and surveillance procedures, but would like to make one comment. Since SCI does not allow the inspectors to adjust the analyzers, the State must notify SCI within two hours advance of any audit so that an SCI technician can meet the State inspector at the audit lane. While there is no reason to believe that the machines are adjusted within the two hours prior to the audit, the State may wish to consider concealing the identity of the station to be audited and meeting the technician elsewhere.

G. Record Keeping

Maryland's computerized analyzers automatically record tests as they occur onto tapes. Once a month, SCI gathers the tapes of completed inspections for distribution to MVA and MAMA. MVA uses the data for program enforcement and monitoring. MAMA produces statistics about the I/M program's results and effectiveness. In addition, SCI produces a set of monthly reports on the operation of the program for the State as well as their own reports for management and quality control of the lanes.

Maryland's record keeping is very accurate, and the way they use the data to manage the program is excellent, despite a small problem with record duplication which SCI, MVA and MAMA are currently working to resolve.

Waiver records are kept by MVA. Most of the records reviewed were well documented in term of repair information, however, the records give no indication of repair effectiveness. When a high volume of waiver applications comes from one particular facility, MVA meets with the facility to determine the problem. A more systematic analysis of looking at the waiver records to identify the source of poor repairs and/or waiver distribution needs to be examined.

The analyzer maintenance records kept by SCI, and the State auditor records are very detailed. Maintenance records, as mentioned earlier are automatically recorded when the computer performs the calibrations. MAMA has developed a database on the audits they conduct which produces routine reports of summary statistics on each audit.

H. Station Licensing

The licensing requirements for both Maryland's fleet inspection stations and certified emission repair facilities are adequate.

Maryland has 245 fleet inspection stations and 467 CERFs. The CERF stations pay $15.00 a year to become certified and must employ at least one certified mechanic to supervise

repairs and employ at least one certified person to conduct the emissions tests. Records of each vehicle tested, and each analyzer calibrated must be maintained on the premises. Unfortunately, since the State can not endorse CERFs, but only release a list of them upon a consumers request, there is hardly any advantage for repair facilities to become certified. EPA suggests that Maryland provide more incentive and recognition for stations to become certified.

I. Consumer Issues/Public Awareness

EPA auditors were very impressed with the State of Maryland's Consumer Issues/Public Awareness Program. Maryland provides excellent brochures to the public that have general information about the program, like what the test results mean, and what to do if your vehicle fails the test. Waiver and warranty information is also available at the State inspection lanes. In addition to the many brochures available, MVA has a consumer hot line which handles approximately 30,000 calls per month. Most of these inquires are for general information, such as where to take vehicles for testing, hours of operation etc..., which are answered by a recording. Callers desiring further information receive a second number to call.

One public awareness item, which EPA feels is not very well known among consumers, is the listing of CERFs. Only upon a consumer's request, can the State issue a list of the certified emission repair facilities. This assumes, of course, that the

consumer is aware that there is such a listing to begin with. EPA understands that the Legislature does not allow Maryland to endorse any particular repair facility, however, the consumer should be made aware that CERFs exist and that a list is available.

Also, EPA would like to suggest that MVA inform consumer that it is to their advantage to make sure the stations performing repairs have an emissions analyzer. CERFs and private garages with analyzers are capable of giving preliminary emissions tests which will indicate whether that the vehicle will pass when it returns to the State lanes for a retest. Ideally, the State should have available for consumers information on the repair success rates of repair facilities. If this information were available, it would not constitute endorsement and consumers would have the advantage of choosing a repair station that had an emissions analyzer and a good repair history. This would have a direct bearing on the number of vehicles receiving waivers and quite possibly would lower the number.

Recommendations

1. The State of Maryland should study the high waiver rate and try to isolate comparative emissions reductions between waived vehicles and repaired vehicles that have passed. Also, Maryland should track repair effectiveness more systematically at different repair facilities and make the results more publicly available. It is felt this will keep to reduce the high waiver rate.
2. Maryland might wish to eliminate pre-test repairs, as a basis for granting waivers and to just use the a straight cost waiver. This would ensure a vehicle of at least having to take a retest before being issued a waiver if the owner had spent less than the predetemined cost.
3. More consistent tampering checks should be implemented so that components are not overlooked. Additional training for MVA representatives on procedures and identification of components in various types of vehicles would be beneficial. Another suggestion would be to develop a checklist for inspectors to follow to ensure all required items are checked.
4. The State should work with SCI to achieve better consistency in the preconditioning phase of the test. Perhaps additional training could be employed for each lane attendant. MAMA should include a periodic review of the attendants during their monthly audits to see that the preconditioning is consistent and properly administered.

5. Maryland may want to consider providing more incentive to repair facilities for becoming certified by giving them more recognition, advising motorists to get repairs at CERFs (not endorsing any one particular facility) or, even accepting waiver applications only from vehicle where repairs have been made by a CERF. More emphasis should be placed on the fact that CERF analyzers are routinely checked for accuracy by the State when providing motorists with information on repairs. Brochures should contain a statement about CERFs and where motorists may be able to pick up a listing of them.

6. Ford restart.

V. Maryland's Response to EPA's Recommendations

The following comments were submitted by the Motor Vehicle Administration, Maryland Department of Transportation on May 16, 1986 and are in the same order as the recommendations listed in Part IV of this report. The Maryland Department of Health and Mental Hygiene did not have any comments on the audit report.

State Response

1. Presently the Maryland Department of Health and Mental Hygiene isolates the comparative emissions reductions of vehicles which have passed after repairs. Data programs can be modified to isolate reductions of vehicles which are waived after repairs.

The tracking of repair effectiveness at different repair facilities has been manually reviewed in instances where a high retest failure rate after repairs appears to be significant and test results between repair and test facilities are also significantly different.

A systematic approach to tracking repair effectiveness will be considered which must include legal as well as other potential ramifications.

EPA Comment

EPA would be interested in any data program analysis performed by the Department of Health and Mental Hygiene to

determine comparative emission reductions between waived vehicles and repaired vehicles that have passed. Also, we would like to be kept apprised of any measures taken to track repair effectiveness.

State Response

2. Maryland waiver procedures are established by law and any such change will require legislative action.

Existing waiver requirements require at the minimum, the performance of a low emissions tune-up or actually expending $50 towards a low emission tune-up if repairs are performed prior to the initial test. In such instances, the owner would have had a low emissions tune-up performed on the vehicle or actually spent the dollar amount required. Additionally, a considerable number of vehicle owners perform their own repairs which results in only the parts having a dollar amount indicated. As a matter of policy, because the time spent by the owner has a value also, an owner performing his own repairs is credited with one and one-half hours labor at $15 per hour for his time spent. This time and dollar amount we believe is realistic based on today's economy.

The 1986 Maryland Legislature authorized the establishment of a Task Force to study the future of the emissions program and to consider alternatives. During this study the straight cost waiver issue will be considered.

EPA Comment

EPA acknowledges that the waiver procedures are established by law and that any changes to them will require legislative action. But, it should be stressed that low emission tune-ups, whether done by an owner or a station lacking an emissions analyzer often are not done according to specifications. Therefore, vehicles may be waived based on the fact they spent a minimum amount of money, not on whether they received a precise tune-up, such as the kind that can be performed by a Certified Emissions Repair Facility.

EPA is pleased to see that the straight cost waiver issue will be considered when the Legislative Task Force examines the future of the emissions program. Again, please keep us informed of what develops on this issue.

State Response

3. Annual training for MVA representatives has been and will continue to be scheduled. With the exception of recent hirees, all representatives have received the anti-tampering course provided by Colorado State University.

All representatives have been issued the 1985 publication of the 1966-1986 Emissions Control Systems Application published by Cascade Automotive Resources.

Additionally, a check list, copy attached has been developed for verification of required emission control

equipment. This form will be prepared in duplicate by the MVA representative when a waiver is applied for. A copy will be provided to the vehicle owner and a copy attached to the waiver file copies.

This information has also been incorporated on the Repair Record (copy attached) required to be completed by each Certified Emissions Repair Facility when emissions related repairs are performed on a vehicle. This will provide for some expansion of the tampering checks.

EPA Comment

The new check lists developed by the MVA (Appendix F) should be useful in providing a consistent means to ensure that all inspectors conduct their tests in a similar fashion. This should alleviate the problems observed by the EPA auditors.

State Response

4. On December 4, 1985 MVA and SC officials met and verbally discussed the EPA audit and particularly the discussion at the exit interview after completion of the audit.

As a result of the December 4 meeting, the attached draft of a letter was forwarded to SC which included the auditors comments as well as mutually agreed upon corrections to any deficiencies. Resultant of the meeting and subsequent correspondence, SC developed and instituted a training program for all lane operators. The training was accomplished in

February 1986 and operations have been monitored since than by SC, MVA and MAMA. Based on the monitoring, testing procedures are consistent and being properly administered. If and when any inconsistencies are observed, the proper authorities are immediately notified.

EPA Comment

The actions discussed and agreed to at the meeting between the MVA and Systems Control are included in Appendix G. If the preconditioning procedures agreed to are in fact uniformly done by all lane attendants the accuracy of the emissions tests should be somewhat improved.

It is also noted that all 1981 and newer Ford Motor Company Products now have their engine turned off at the entrance to the test lane and it is restarted after the lane attendant motions the operator into the bay. Also, it is understood that Systems Control has voluntarily agreed to apply this procedure to 1979 and 1980 Ford Motor Company products. This practice should result in less Ford products improperly failing the emissions test.

State Response

5. Because of legal ramifications we cannot recommend any particular repair facility whether certified or not. However, the "Your Vehicle Failed The Emissions Test" brochure (copy attached) has been revised and now clearly contains information concerning Certified Emissions Repair Facilities.

Because this brochure is issued for each vehicle failing a test, the information relative to CERF's now has a more widespread distribution and is therefore available to more vehicle owners.

EPA Comment

A copy of the revised brochure - "Your Vehicle Failed The Emission Test", has been included in Appendix H. The new language concerning Certified Emission Repair Facilities is an improvement over the previous brochure and should greatly assist motorists in their selection of quality repair service. Another benefit is that this may be on incentive for non-certified repair facilities to become certified for emissions testing.

Appendix A

Participating Persons at Maryland I/M Audit

on November 19-21, 1985

Ed Carter	MAMA
Tom Snyder	MAMA
John McGillen	MAMA
Jacqueline Pine	EPA, Region III
Dan Ryan	EPA, Region III
Paul Argyroupulos	EPA, Washington, DC
Dean Ross	EPA, Washington, DC
John Cabaniss	EPA, Ann Arbor, MI
Gay McGregor	EPA, Ann Arbor, MI
Bruce Diehl	MVA
Ray Salehar	MVA

STATE OF MARYLAND —:— DEPARTMENT OF HEALTH AND MENTAL HYGIENE

MEMORANDUM

Copies

TO Tom Snyder **From** Dan Meszler **Date** 11/17/86

Subject Inclusion of Charles, Frederick, Cecil and Queen Anne's counties into the VEIP

As per your request I have estimated the potential impact of including the four counties referenced above into the VEIP. Due to the non-rigorous methodology used to obtain the estimates, the numbers which follow should not be treated as absolute. They are, however, reasonable indicators of whether or not inclusion of the four counties is warranted.

As a simplistic approach to approximating the maximum and minimum benefits which would be derived from inclusion of the four counties, a two scenario approach was utilized. Scenario #1, which approximates the maximum benefits which would be derived, is based on the assumption that each of the additional vehicles which would be subject to VEIP (1974-1985) upon inclusion of the four counties would directly benefit either the Baltimore or Washington region in terms of additional HC reduction. Senario #2, which approximates the minimum benefit which would be derived, is based on the assumption that only those vehicles which are actually used for commuting into a non-attainment area from the four counties and which would be subject to VEIP (1974-85) upon the four county inclusion would benefit the non-attainment area in terms of additional HC reduction.

The results of this two scenario analysis are summarized in the table below. Assumptions and data sources are documented via footnote.

	CURRENT SCENARIO		SCENARIO #1		SCENARIO #2	
	NUMBER OF VEHICLES SUBJECT TO VEIP [1]	HC REDUCTION [2] (metric tons/day)	NUMBER OF VEHICLES SUBJECT TO VEIP [3]	HC REDUCTION [4] (metric tons/day)	NUMBER OF VEHICLES SUBJECT TO VEIP [5]	HC REDUCTION [4] (metric tons/day)
BALTIMORE REGION	954489	10.8	1009987	11.4	960967	10.9
WASHINGTON REGION	682287	7.7	776344	8.8	697496	7.9

1. The number of vehicles subject to VEIP under the current scenario is based on the actual number of initial SC emissions tests performed in 1986. All tests performed at SC stations 1-6 are considered to represent the Baltimore regional population while all tests performed at SC stations 7-10 are considered to represent the Washington regional population. Since only three quarters of 1986 data was available, a simple adjustment factor of 4/3 was applied to each regional population.

2. The HC reduction under the current scenario was obtained from S. Aust, who verbally supplied the 10.8 figure and a .71 Baltimore to Washington conversion factor.

3. The number of vehicles subject to VEIP under scenario #1 is based on vehicle registration data obtained from the MVA. County registration data was available for 1980 and 1985. I used this data to calculate an annual growth factor for each county. Application of these growth factors to 1985 data resulted in a figure for 1986 for each county. Each of these 1986 figures was then adjusted by a factor of .863 (the fraction of 1974-1985 vehicles in the total vehicle population-source: AP42-Volume II) to obtain the number of vehicles which would be subject to VEIP. A final adjustment was made to each county figure to calculate the number of vehicles affecting each region. This final adjustment was made using the four county Baltimore/Washington split factor calculated as described in note 5 below.

4. The HC reduction under both scenario #1 and #2 was obtained using the assumption that a direct linear relationship exists between the number of vehicles contributing to the reduction and the reduction itself.

5. The number of vehicles subject to VEIP under scenario #2 is based on 1980 census data obtained from RPC and COG. RPC was able to provide information on the number of people who commuted, for employment purposes,into the Baltimore non-attainment area from each of the four counties. COG was able to produce this data for the Washington non-attainment area. In addition, COG was also able to produce data for actual vehicle cross county employment trips. From the COG data, an adjustment factor was calculated and applied to the RPC data to convert to a vehicle basis. Both COG and RPC data were further adjusted using the growth factors and the VEIP population/total population factor described in note 3 above. This adjusted cross-county data is presented in the table below.

		DEPARTURE			
		FREDERICK COUNTY	CHARLES COUNTY	QUEEN ANNES COUNTY	CECIL COUNTY
DESTINATION	BALTIMORE CITY	323	79	410	148
	BALTIMORE COUNTY	127	85	167	104
	ANNE ARUNDEL COUNTY	72	133	1698	26
	HOWARD COUNTY	293	3	40	1
	HARFORD COUNTY	0	0	0	1725
	CARROLL COUNTY	1044	0	0	0
	BALTIMORE REGION	1859	300	2315	2004
	MONTGOMERY COUNTY	8420	452	0	0
	PRINCE GEORGE'S CO.	421	5916	0	0
	WASHINGTON REGION	8841	6368	0	0
	BALTIMORE/WASHINGTON REGION	10700	6668	2315	2004

DM/th

Appendix IV

Glossary

APPENDIX

GLOSSARY OF TERMS

air monitoring site - part of a network of continuous air sampling stations where the Air Management Administration measures levels of air pollutants according to EPA-approved methods

air stagnation - meteorological condition that traps an air mass within a small area, usually a city and its environs, thereby preventing air circulation and raising air pollutant levels

ambient air quality - the condition of outdoor air in a particular area

area sources - contributors to air pollution which are individually insignificant, but of concern as a group, e.g. residential heating units

carbon monoxide (CO) - an odorless and colorless gas, usually the product of incomplete combustion, that inhibits the blood's absorption of oxygen, aggravates heart disease, and promotes dizziness and headaches

centralized program - an I/M program run at a limited number of multi-lane inspection stations, either by a private contractor or by a governmental agency

change-of-ownership - vehicle title transactions, such as used vehicle sales and new registrations, that would trigger a safety inspection

Clean Air Act - the comprehensive federal law that establishes National Ambient Air Quality Standards and requirements for state compliance with those standards, including guidelines for State Implementation Plans

decentralized program - an I/M program run at repair facilities, or private garages specializing in automotive repair

Emission Factor - Program EPA's testing program for in-use vehicle emissions to determine manufacturers compliance with the 50,000 mile warranty requirement and to track deterioration of vehicle emissions for State Implementation Plan modeling

emission inventory - itemization of individual and aggregate sources of emissions, including impacts of control strategies on the emission levels

emission standards - as applied to the VEIP, permitted concentrations of exhaust emissions of carbon monoxide and hydrocarbons which must not be exceeded, or the level of exhaust emissions of carbon dioxide which must be exceeded to provide an accurate test

emissions -	the discharge of gases, liquids, or solids borne by the air, that contribute directly or indirectly to air pollution
fail rate -	the percentage of vehicles tested which have emission concentrations above the emission standards for the VEIP
Federal Motor Vehicle Control Program (FMVCP) -	also referred to as the federal new car program; EPA's program requiring motor vehicle manufacturers to build vehicles to meet federal emission standards
fleet inspection station -	a private, commercial facility authorized by the MVA to inspect and repair, under MVA's supervision, vehicles the facility owns
hydrocarbons (HC) -	includes some organic compounds that combine with nitrogen oxides in the presence of sunlight to produce ozone
inspection/maintenance (I/M) -	a type of periodic program to reduce the excess emissions produced by vehicles that have not been maintained on schedule
malmaintenance -	failure to perform scheduled repairs on a vehicle
megagram (Mg) -	one million grams, roughly equal to 1.1 tons
misfueling -	filling a vehicle's gasoline tank with leaded fuel when the vehicle requires unleaded fuel, thereby destroying the catalytic converter
MOBILE 3 -	EPA's method of modeling the vehicle component of an emissions inventory, both before and after the VEIP
National Ambient Air Quality Standards -	levels of seven criteria pollutants, set by EPA on a health and scientific basis; the susceptible portion of the public may be exposed to unhealthful conditions at levels exceeding the primary standards
ozone -	a gaseous pollutant characteristic of urban smog formed by the chemical reaction of hydrocarbons and nitrogen oxides in the presence of sunlight; irritates eye, nose and throat membranes, inhibits respiration and erodes rubber products and some crop foliage
parameter checks -	physical and mechanical inspections for tampering with a vehicle's air pollution control equipment
ppb -	parts per billion, a unit of pollutant concentration
ppm -	parts per million, a unit of pollutant concentration

Reid vapor pressure -	a measure of the volatility, or ability to emit hydrocarbon vapors, of gasoline
shortfall -	the deficit between needed reductions in an emissions inventory and actual reductions realized from control strategies
State Implementation Plan (SIP) -	the comprehensive plan commiting a state to specific control strategies necessary to reduce emission inventories so that National Ambient Air Quality Standards are met
stationary sources -	large individual contributors to air pollution, e.g. industry, public utilities
Systems Control, Inc. (SCI) -	the current private contrator running the VEIP for the State of Maryland
tampering -	the removal, alteration or disablement, except for a bona fide repair or replacement, of air pollution control equipment installed by a motor vehicle manufacturer on a 1968 or later model year vehicle
test fee -	the amount of money charged a motorist by an inspection station to perform the VEIP test
waiver -	the one-year exemption granted a vehicle that is unable to pass the emission standards after receiving appropriate repairs specified in the statute, provided the vehicle emission controls have not been tampered with
waiver rate -	the percentage of vehicles failing a VEIP test that receive a waiver

Appendix V

Carroll County Circuit Court Decision on VEIP

JOHN L. ARMACOST, et al.	*	No. 19972 Equity
Petitioners	*	In The
vs.	*	Circuit Court
THE DEPARTMENT OF TRANSPORTATION, et al.	*	For
Respondents	*	Carroll County
	*	

* * * * * * * * * * * *** * * * * * * * * * *

OPINION AND ORDER

The matter before the Court is the Petitioners' April 24, 1986 Motion for Summary Judgment and Respondents' May 13, 1986 Cross-Motion for Summary Judgment. After a May 23, 1986 hearing, wherein the parties agreed that there is no genuine dispute as to any material fact in this case, the Court held the matter sub curia.

A plethora of arguments has been presented by the Petitioners in attacking the constitutionality of the Vehicle Emissions Program. They argue, inter alia, that the Program, as enacted, unlawfully discriminates between them and the non-affected residents; that, in effect, they are prohibited from dumping their pollution on the highways of this State while it makes it perfectly lawful for non-affected residents to spill their pollution in the affected areas; that it invites pollution to the area by providing a Vehicle Emissions Testing Station in the County, to test vehicles not registered in this geographical location, and that it arbitrarily exempts vehicles, regardless of the amount of polluted air that they emit into the atmosphere. These questions, as well as many other arguments that were presented in these proceedings, obviously have merit but appear to present political

questions as opposed to legal questions and, accordingly, those arguments should be addressed to the Legislature as opposed to the Court. It would appear, however, that the arguments advanced by Petitioners never reached the floor of the Legislature because of the manner of the Program's enactment. It appears obvious that the Vehicle Emissions Inspection Program is not, in and of itself, unconstitutional; however, the method of its enactment, in the Court's opinion, does render the Bill unconstitutional.

The issue presented is whether or not §23-202 and §23-207 of the Maryland Annotated Code, Transportation Article, constitute an unlawful delegation of power from the Legislature to an administrative agency. The right of the Maryland Legislature to delegate powers to administrative agencies has been recognized for more than a century. Harrison v. Mayor and City Council of Baltimore, 1 Gill 264 (1843); see, also, Department of Natural Resources v. Linchester, 274 Md. 211, 218 (1975). The right of the Legislature to delegate its power, however, is limited by the fundamental doctrine of separation of powers. This doctrine is essential to this State's democratic form of government and requires that no one branch of government discharge the duties of any other branch of government. Maryland Declaration of Rights, Article 8.

It is a generally accepted principle that "a statute or ordinance vesting discretion in administrative officials without fixing any standards for guidance is an unconstitutional delegation of power." Pressman v. Barnes, 121 A.2d 816, 822 (1956). Thus, this Court must decide whether the Legislature provided adequate guidelines "so that the administrative officials, appointed by the

executive and not elected by the people, will not legislate, but will find and apply facts in a particular case in accordance with the policy established by the legislative body." Gino's v. Baltimore City, 250 Md. 621, 640 (1968) (emphasis in original).

§23-202(a) merely states that the MVA is to publish rules and regulations "to the extent required by federal law". §23-202(b) goes on to say that "The program shall require that an inspection system be established in this State...". Lastly, §23-207 again states that the MVA's rules and regulations be "consistent with federal law". These provisions clearly do not set forth sufficient guidelines for the MVA to determine what persons, vehicles and geographic areas should be included in the program. At best, one could argue that the guidelines, if any, require the MVA to establish a state-wide program as opposed to the regional program that currently exists.

Moreover, it is a fundamental principle of administrative law that:

> a legislatively delegated power to make rules and regulations is administrative in nature and it is not and cannot be the power to make laws; it is only the power to adopt regulations to carry into effect the will of the legislature as expressed by the statute. Legislation may not be enacted by an administrative agency under the guise of its exercise of the power to make rules and regulations by issuing a rule or regulation which is inconsistent or out of harmony with, or which alters, adds to, extends or enlarges, subverts, or impairs, limits, or restricts the act being administered.

1 Am. Jur.2d Administrative Law §132 (1962). Thus, in applying the program only to the Baltimore and Washington Metropolitan

Regions, and not to the State as a whole, as provided for in §23-202(b), the MVA restricted the act being administered and, in so doing, legislated.

Therefore, this Court finds that the delegation of power by the Legislature was too broad and failed to provide adequate guidelines and thus it was unconstitutional and the statutes and regulations in question are invalid.

It is, therefore, this 12th day of January, 1987, by the Circuit Court for Carroll County, ORDERED that Respondents' Cross-Motion for Summary Judgment be and hereby is DENIED, and, further, that Petitioners' Motion for Summary Judgment be and hereby is GRANTED.

It is further ORDERED that the aforegoing is a final judgment and the injunction prayed by the Petitioners be and hereby is stayed for thirty (30) days from the date of this judgment, or until the appeal period has run, whichever is longer.

Judge

TRUE COPY TEST

CLERK